3.18 SOCIOECONOMICS

SYNOPSIS

This section first describes the 56 potentially affected communities of the Yukon-Kuskokwim region and others in the EIS Analysis Area in terms of: population; economy; income and unemployment; and fiscal characteristics. Discussion then turns to affected communities farther from the proposed mine site, and reviews existing infrastructure and services, for all of the communities discussed. The potential impacts to employment, income, and sales; tax revenue and other fiscal effects; and public infrastructure and services are analyzed. Potential impacts of the Donlin Gold Project and alternatives are analyzed for local, regional, and out-of-region economies, dividing the project by phase rather than component.

Summary of Existing Conditions:

Employment, Income and Sales: The potentially affected area covers a wide geographic area and diverse socioeconomic conditions. With the exception of Bethel, the villages of the Yukon-Kuskokwim region are similar in being small, remote communities with subsistence-based economies and few opportunities for year-round employment. Government jobs are critically important, and communities are feeling effects of federal funding cuts. Commercial fishing, which is seasonal and subject to fluctuating stocks, is the mainstay of the private economy. These communities have among the lowest rates in the state for per capita income, and among the highest for unemployment. Many people are leaving these small communities for economic opportunities in urban areas.

The City of Bethel, the regional hub for services and transportation and home to more than 20 percent of the population of the Yukon-Kuskokwim region, has much higher employment—comparable in recent years to that of Southcentral Alaska, combined with lower per capita income.

Other affected areas include: the City of Unalaska, where year-round seafood processing employs nearly one half the (two-thirds male) population; the Kenai Peninsula Borough, with a high proportion of retirees whose income comes from outside the Borough; the Matanuska-Susitna Borough, with the fastest-growing employment in the state; and, the Municipality of Anchorage, the most populous community in Alaska.

Tax Revenue and Other Fiscal Effects: Small communities in the affected area typically do not levy taxes, while larger communities often levy a "bed" tax on hotel stays. In addition to such hospitality taxes, Anchorage, Kenai, and the Matanuska-Susitna Borough all levy property taxes, while Kenai has a 3 percent sales tax and Matanuska-Susitna Borough has a 5.74 percent tobacco tax. The proposed project, in addition to lease revenues to Calista Corporation (Calista) and The Kuskokwim Corporation (TKC), and wages to employees, would bring tax revenues to the taxing jurisdictions in the EIS Analysis Area.

Local Infrastructure and Services: Infrastructure and services vary widely across the potentially affected communities. Anchorage and surrounding areas provide extensive infrastructure and services—in education, transportation, health care, public safety and other areas, while villages in the Yukon-Kuskokwim region typically provide basic amenities such as an elementary school and a resident health aide for health care. Residents of small communities routinely travel for health care and for higher education. Within the potentially affected area, only the communities in Southcentral use natural gas; in Western Alaska both heat and electricity are often provided by diesel fuel, leading to the highest energy costs in the nation.

Expected Effects:

Alternative 1: No Action – Under this alternative, the proposed project would not proceed. Socioeconomic impacts from Donlin Gold exploration activities, which were realized in the Y-K region over the previous decade, would cease. Impacts to the Y-K region would be minor and impacts to areas outside of the Y-K region would be negligible.

Alternative 2: Donlin Gold's Proposed Action – Donlin Gold, LLC has an established in-region, Calista-shareholder hiring preference and has committed to maintaining this throughout the project. Many workers with the skills needed for the construction phase are available within the region, and an estimated 1,600 to 1,900 from Yukon-Kuskokwim communities would be employed during this phase. During operations and maintenance, an estimated 500 to 600 regional resident would be employed. Employment income could help to offset the current trend of decreasing income from fishing. Additionally, for each year the project is operational, an estimated 650 jobs and $40 million in wages would be generated statewide through multiplier effects, while sales within the state would increase by $150 million per year. As landowners at the mine site, Calista and TKC would receive substantial income through lease, surface use agreement, and royalty payments. For the pipeline, landowners will receive right-of-way lease payments, while state and local governments would receive tax revenue. The summary effect for the entire alternative is moderate overall and beneficial, although major (beneficial) in the region.

Other Alternatives: The summary effects of other alternatives on socioeconomic resources would be similar to those of Alternative 2. Differences of note include slight increases in construction and/or closure work opportunities for some alternatives:

- *Alternative 3A (LNG-Powered Haul Trucks)* – would reduce fuel barging and reduce the need for increased tank capacity at Dutch Harbor. Property tax to the City of Unalaska would not increase as under Alternative 2.
- *Alternative 3B (Diesel Pipeline)* – would eliminate diesel fuel barging after the construction phase and decrease work and tax income from diesel storage tanks. Pipeline expenditures would increase proportionally including increased employment expenditures for pipeline maintenance.
- *Alternative 4 (Birch Tree Crossing Port)* – would reduce river barging distance and require construction of a longer mine access road to the upriver barge landing.

- *Alternative 6A (Dalzell Gorge Pipeline Route)* – would require larger workforce and higher expenditures due to more horizontal directional drilling than Alternative 2.

3.18.1 AFFECTED ENVIRONMENT

This section provides information about current socioeconomic conditions within the EIS Analysis Area. This includes population characteristics and economic conditions. The following paragraphs outline the geographic units and the communities analyzed in relation to these components:

Mine Site – The mine site is located in the Yukon-Kuskokwim (Y-K) region, a 58,000-square mile section of southwestern Alaska. The populace of the large Y-K region would be directly affected by potential employment at the mine, as Donlin Gold has expressed a commitment to hiring qualified Calista Corporation (Calista) shareholders and Y-K region residents during construction and operation of the mine (Donlin Gold 2012). The Y-K region encompasses the Bethel and Kusilvak[1] Census Areas, which together are home to approximately 54 villages. The boundaries of the two census areas coincide with those of Calista lands. In addition, the Y-K region includes 12 communities within the boundaries of Doyon, Ltd. within the Yukon-Koyukuk Census Area. Therefore, data for those communities have been added to the aggregated data presented for the Y-K region. To help understand socio-economic patterns, Bethel is excluded from the Y-K region grouping; data for this relatively large community are presented separately to ensure that smaller communities within the grouping are adequately described.

Transportation Facilities – The cities of Bethel and Unalaska-Dutch Harbor are included in the analysis because these Alaska cities would be the location of transportation facilities for the proposed project. According to the Transportation Plan (SRK 2013a), an existing cargo terminal with berth and mooring facilities in Bethel would be expanded. The cargo terminal would receive fuel and other cargo from Dutch Harbor via marine barge. Dutch Harbor is the location of the City of Unalaska's port.

In addition, for this project component, aggregated data are presented for 29 communities along the Kuskokwim River from Stony River down to Platinum. All of these communities are located in the Bethel Census Area. Subsistence and commercial fishing and other uses of the river by these communities could potentially be affected by project-related barge traffic. As before, Bethel is excluded from the river community grouping as data are presented separately for this relatively large community.

The Municipality of Anchorage is also included in the transportation facilities analysis. Anchorage is the nearest urban area to the proposed project and is the headquarters location for Donlin Gold and most Alaska firms that would provide goods and services during the transportation facilities construction phases.

[1] The Kusilvak Census Area was formerly known as the Wade Hampton Census Area. The name change was effective July 1, 2015, and is noted on the U.S. Census Bureau website at: http://www.census.gov/geo/reference/county-changes.html. There was only a change in name, and there was no change to the boundary of the census area.

Pipeline – Construction and operation of the proposed natural gas pipeline (or diesel fuel pipeline alternative) would have impacts to local and regional socioeconomic conditions along the proposed pipeline corridor. According to the Natural Gas Pipeline Plan of Development (SRK 2013b), the Beluga Barge Landing in the Kenai Peninsula Borough (KPB), together with Bethel, would be the primary accumulation points for pipeline materials during construction. The pipeline would originate at a tie-in located in the Matanuska-Susitna Borough (MSB) and would run to the mine site. The MSB would receive oil and gas property taxes on pipeline property located within its jurisdiction. Under Alternative 3B, the KPB as well as the MSB would receive oil and gas property taxes, as the diesel fuel pipeline would be routed from Tyonek in the KPB to the mine site along a corridor similar to that of the natural gas pipeline.

In addition, the populace of the Y-K region would be directly affected by potential employment opportunities during construction and operation of the natural gas pipeline. Donlin Gold has expressed a commitment to hiring qualified Calista shareholders and Y-K region residents during those phases of the project.

The Municipality of Anchorage and State of Alaska are also included in the mine site and pipeline areas. Similar to transportation facilities, Alaska firms based in Anchorage would provide goods and services during the mine and pipeline construction phases. The State of Alaska is included in the areas because it may collect rents, royalties, mining license tax, corporate income tax, and various permit and other fees from Donlin Gold.

3.18.1.1 POTENTIALLY AFFECTED COMMUNITIES AND COMMUNITY GROUPS

The following figures and tables describe which communities are affected by major project components, and provide general social and economic information for the communities of the EIS Analysis Area. Table 3.18-1 summarizes the communities or community groups potentially affected by each project component. Figure 3.18-1 depicts Bethel and the communities of the Y-K region. Figure 3.18-2 depicts the Kuskokwim River Communities. Table 3.18-2 displays population and age information, while Table 3.18-3 shows educational characteristics. Table 3.18-4 describes the major economic sectors, and Table 3.18-5 displays income and unemployment characteristics. Table 3.18-6 shows the sources of government revenue.

Table 3.18-1: Communities and Community Groups Potentially Affected by Project Component

	Mine Site Infrastructure and Processes Area	Transportation Facilities Area	Natural Gas Pipeline Area
Y-K region[1]	X		X
Bethel Census Area	X		X
Kusilvak Census Area	X		X
City of Bethel	X	X	X
City of Unalaska		X	
Kuskokwim River Communities[1]		X	
Kenai Peninsula Borough			X
Matanuska-Susitna Borough			X
Municipality of Anchorage	X	X	X

Table 3.18-1: Communities and Community Groups Potentially Affected by Project Component

	Mine Site Infrastructure and Processes Area	Transportation Facilities Area	Natural Gas Pipeline Area
State of Alaska	X		X

Notes:

1 Excluding the City of Bethel.

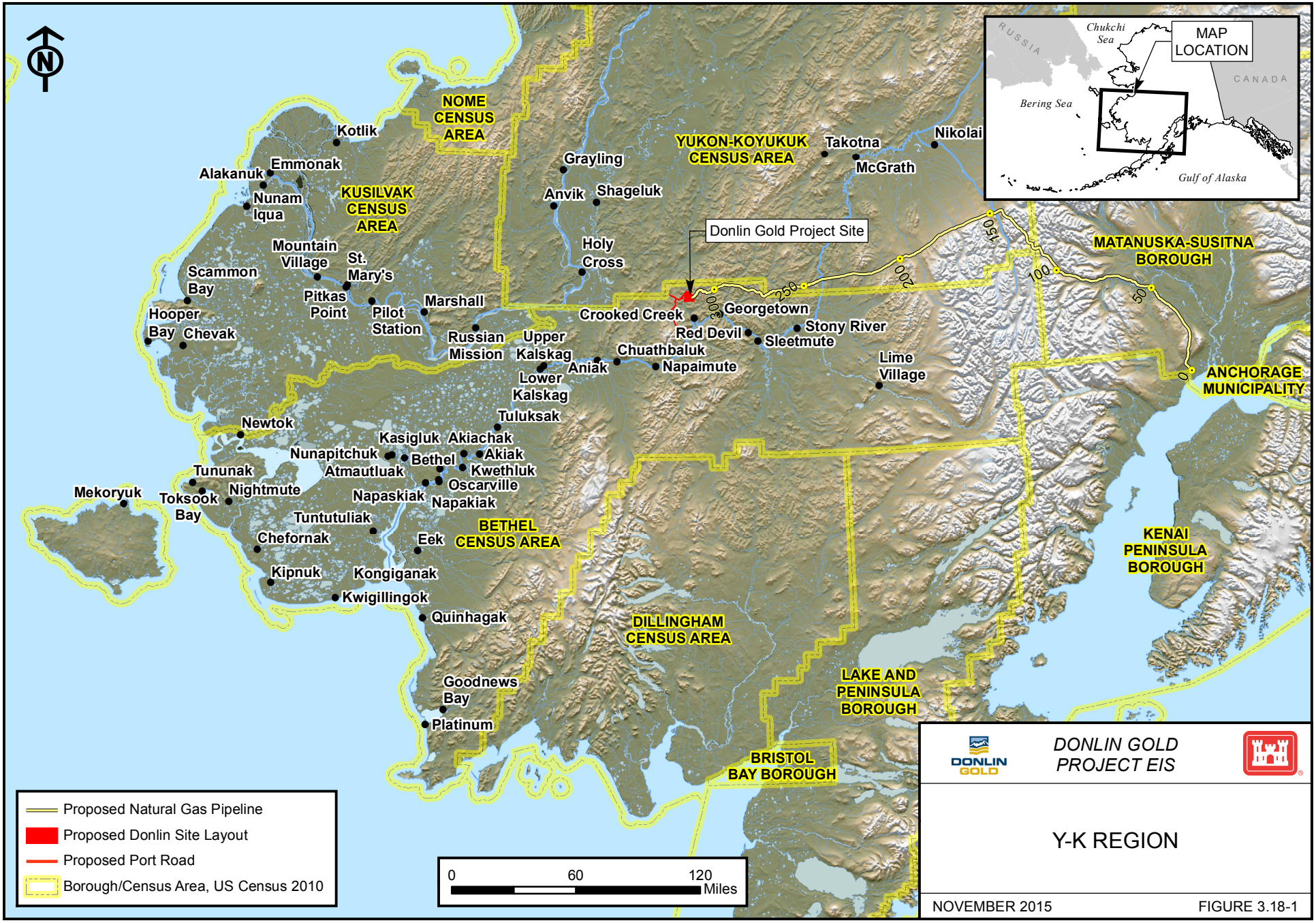
Table 3.18-2: Population and Age Characteristics, 2000 and 2010

	Population			Age (2010)			
	2000	2010	% Change 2000-2010	% Under 18	% 18-64	% 65 and Over	Median[2]
Y-K region [1]	18,727	19,345	3.3	39.4	54.1	6.5	24.1
Bethel Census Area	16,046	17,013	6.0	36.5	57.3	6.1	26.2
Kusilvak Census Area	7,028	7,459	6.1	41.6	53.0	5.4	21.9
City of Bethel	5,471	6,080	11.1	32.7	62.8	4.5	28.7
City of Unalaska	4,283	4,376	2.2	14.0	83.3	2.7	40.7
Kuskokwim River Communities[1]	8,933	9,140	2.3	38.4	54.8	6.8	24.8
Kenai Peninsula Borough	49,691	55,400	11.5	23.7	65.0	11.3	40.6
Matanuska-Susitna Borough	59,322	88,995	50.0	28.9	63.2	7.9	34.8
Municipality of Anchorage	260,283	291,826	12.1	26.0	66.8	7.2	32.9
State of Alaska	**626,931**	**710,231**	**13.3**	**26.4**	**65.9**	**7.7**	**33.8**

Notes:

1 Excluding City of Bethel.
2 Weighted average median age was calculated for Y-K region and Kuskokwim River communities.

Source: U.S. Census Bureau 2013b.


NOME CENSUS AREA
KUSILVAK CENSUS AREA
YUKON-KOYUKUK CENSUS AREA
BETHEL CENSUS AREA
DILLINGHAM CENSUS AREA
LAKE AND PENINSULA BOROUGH
BRISTOL BAY BOROUGH
KENAI PENINSULA BOROUGH
MATANUSKA-SUSITNA BOROUGH
ANCHORAGE MUNICIPALITY
Donlin Gold Project Site
Kotlik
Emmonak
Alakanuk
Nunam Iqua
Mountain Village
St. Mary's
Scammon Bay
Pitkas Point
Pilot Station
Marshall
Hooper Bay
Chevak
Russian Mission
Upper Kalskag
Lower Kalskag
Aniak
Chuathbaluk
Napaimute
Crooked Creek
Red Devil
Georgetown
Sleetmute
Stony River
Lime Village
Holy Cross
Grayling
Anvik
Shageluk
Takotna
McGrath
Nikolai
Newtok
Tuluksak
Kasigluk
Akiachak
Nunapitchuk
Bethel
Akiak
Atmautluak
Kwethluk
Tununak
Nightmute
Oscarville
Napaskiak
Napakiak
Mekoryuk
Toksook Bay
Tuntutuliak
Chefornak
Eek
Kipnuk
Kongiganak
Kwigillingok
Quinhagak
Goodnews Bay
Platinum
0
50
100
150
200
250
300
MAP LOCATION
Chukchi Sea
Bering Sea
Gulf of Alaska
RUSSIA
CANADA
Proposed Natural Gas Pipeline
Proposed Donlin Site Layout
Proposed Port Road
Borough/Census Area, US Census 2010
0
60
120
Miles
DONLIN GOLD
DONLIN GOLD PROJECT EIS
Y-K REGION
NOVEMBER 2015
FIGURE 3.18-1

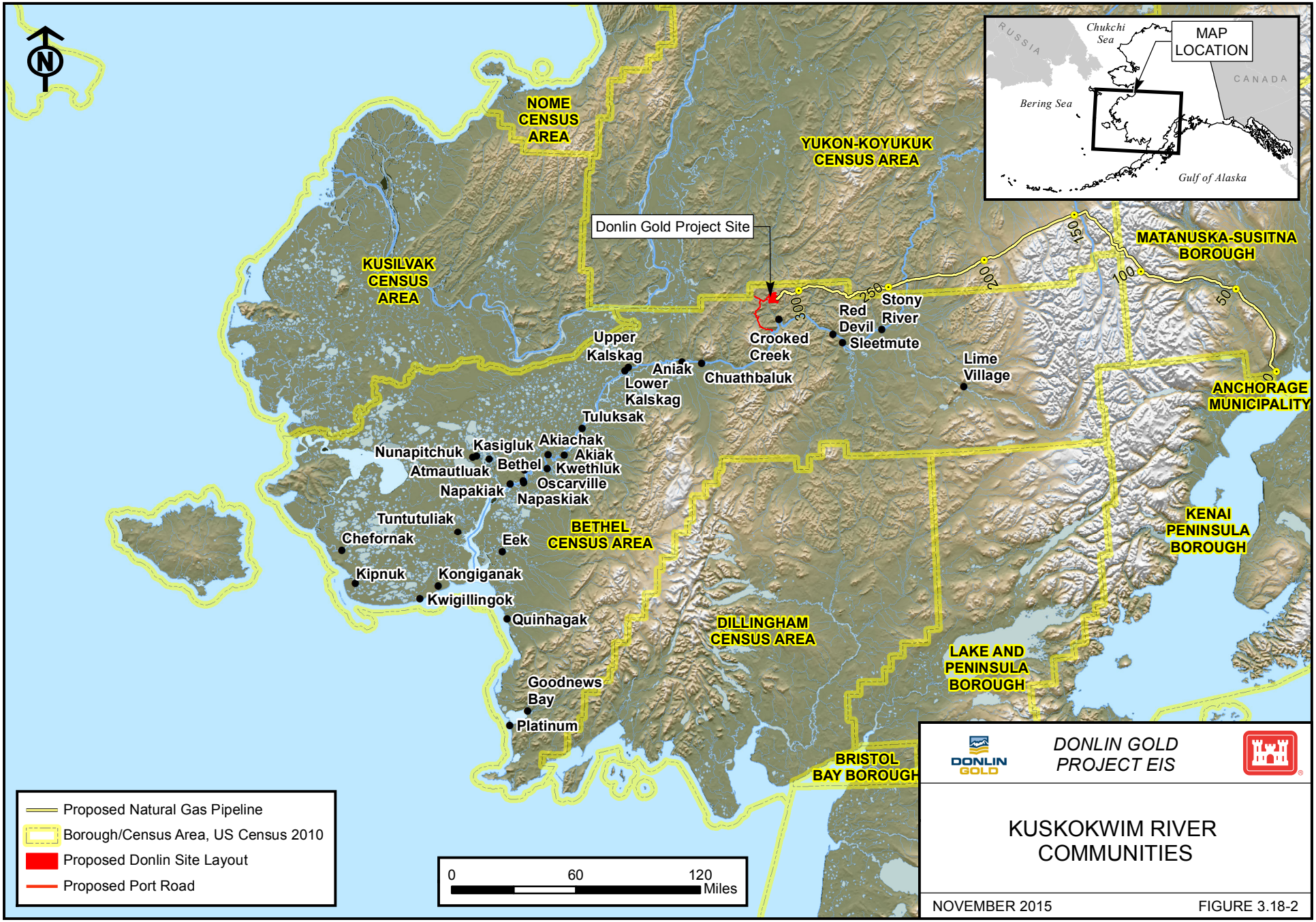

NOME CENSUS AREA
YUKON-KOYUKUK CENSUS AREA
KUSILVAK CENSUS AREA
Donlin Gold Project Site
MATANUSKA-SUSITNA BOROUGH
ANCHORAGE MUNICIPALITY
KENAI PENINSULA BOROUGH
BETHEL CENSUS AREA
DILLINGHAM CENSUS AREA
LAKE AND PENINSULA BOROUGH
BRISTOL BAY BOROUGH
MAP LOCATION
Chukchi Sea
Bering Sea
Gulf of Alaska
RUSSIA
CANADA
Upper Kalskag
Aniak
Lower Kalskag
Chuathbaluk
Crooked Creek
Red Devil
Stony River
Sleetmute
Lime Village
Tuluksak
Akiachak
Akiak
Kasigluk
Nunapitchuk
Atmautluak
Bethel
Kwethluk
Napakiak
Oscarville
Napaskiak
Tuntutuliak
Chefornak
Eek
Kipnuk
Kongiganak
Kwigillingok
Quinhagak
Goodnews Bay
Platinum
0
50
100
150
200
250
300
Proposed Natural Gas Pipeline
Borough/Census Area, US Census 2010
Proposed Donlin Site Layout
Proposed Port Road
0
60
120
Miles
DONLIN GOLD
DONLIN GOLD PROJECT EIS
KUSKOKWIM RIVER COMMUNITIES
NOVEMBER 2015
FIGURE 3.18-2

Table 3.18-3: Educational Characteristics, 2007-2011

	Percent of Persons 25 to 65 Years Old		
	No High School Degree	High School Degree Only	College, Professional School, or Graduate Degree
Y-K region [1]	NA		
Bethel Census Area	14	73	13
Kusilvak Census Area	18	75	7
City of Bethel	NA		
City of Unalaska	NA		
Kuskokwim River Communities[1]	NA		
Kenai Peninsula Borough	6	71	23
Matanuska-Susitna Borough	6	72	21
Municipality of Anchorage	7	60	33
State of Alaska	7	65	28

Notes:

1 Excluding City of Bethel.

Source: U.S. Census Bureau 2013a.

Table 3.18-4: Major Economic Sectors, 2011

	Number of Resident Workers[2]	Resident Employment in Top Three Economic Sectors
Y-K region [1]	9,352	Local Government (51%)
		Trade, Transportation and Utilities (14%)
		Other (8%)
Bethel Census Area	8,108	Local Government (42%)
		Trade, Transportation and Utilities (15%)
		Educational and Health Services (14%)
Kusilvak Census Area	3,472	Local Government (48%)
		Trade, Transportation and Utilities (17%)
		Other (9%)
City of Bethel	2,753	Educational and Health Services (29%)
		Local Government (20%)
		Trade, Transportation and Utilities (19%)
City of Unalaska	1,661	Manufacturing (47%)
		Trade, Transportation and Utilities (24%)
		Local Government (14%)
Kuskokwim River Communities[1]	4,505	Local Government (53%)
		Trade, Transportation and Utilities (14%)
		Other (9%)

Table 3.18-4: Major Economic Sectors, 2011

	Number of Resident Workers[2]	Resident Employment in Top Three Economic Sectors
Kenai Peninsula Borough	24,001	Trade, Transportation and Utilities (20%)
		Educational and Health Services /Local Government (14%)
		Natural Resources and Mining (12%)
Matanuska-Susitna Borough	37,785	Trade, Transportation and Utilities (21%)
		Educational and Health Services (15%)
		Local Government (11%)
Municipality of Anchorage	129,971	Trade, Transportation and Utilities (22%)
		Educational and Health Services (15%)
		Leisure and Hospitality (12%)
State of Alaska	308,272	Trade, Transportation and Utilities (21%)
		Local Government (15%)
		Educational and Health Services (14%)

Notes:

1 Excluding City of Bethel.
2 Federal government, military, self-employed, and "non-resident" workers are not included.

Source: ADOL 2013a.

Table 3.18-5: Income and Unemployment Characteristics, 2007-2011 and 2011

	Resident Per Capita Income[2]	Unemployment Rate[2]
Y-K region [1]	NA	NA
Bethel Census Area	$32,108	15.0
Kusilvak Census Area	$21,992	20.7
City of Bethel	$29,261	7.6
City of Unalaska	$30,224	3.1
Kuskokwim River Communities[1]	NA	NA
Kenai Peninsula Borough	$41,772	9.4
Matanuska-Susitna Borough	$41,905	8.8
Municipality of Anchorage	$50,958	6.1
State of Alaska	$45,665	7.6

Notes:

1 Excluding City of Bethel.
2 Data for Cities of Bethel and Unalaska are based on a 5-year average for 2007-2011; data for other areas are for 2011.

Source: ADOL 2013c; ADOL 2013d; U.S. Census Bureau 2013a.

Table 3.18-6: Sources of Government Revenue, 2012

	Property Tax	Sales Tax	O&G Property Tax	Special Taxes		Inter-governmental Transfers	Other General Fund Revenues	Non-General Fund Revenues	Enterprise/ Business Funds
				Total Special Taxes	Special Taxes				
	Thousands of Dollars								
Y-K region[1]	NA								
Bethel Census Area Communities	NA								
Kusilvak Census Area Communities	NA								
City of Bethel	0	7,206	0	**859**	12% bed tax, 6% gaming tax	1,319	986	1,893	9,495
City of Unalaska	4,756	13,830	0	**5,452**	5% bed tax, 2% raw fish tax	11,139	1,067	4,788	35,519
Kuskokwim River Communities[1]	NA								
Kenai Peninsula Borough	47,345	28,385	6,720	**0**	None	9,749	2,349	37,272	175,426
Matanuska-Susitna Borough	110,904	0	159	**6,145**	5% bed tax, 5.74% cigarette & tobacco tax	24,457	237	64,162	6,293
Municipality of Anchorage	486,106	0	3,943	**45,714**	12% bed tax, 8% car rental tax, 113.2 mill cigarette & 55% tobacco tax	48,818	5,711	143,628	288,274

Notes:

1 Excluding City of Bethel.

Source: DCCED 2013b; ADOL 2013a.

3.18.1.1.1 Y-K REGION

Y-K Region – Population

The Y-K region is large and sparsely populated. Fifty-four of the region's 56 villages have fewer than 1,000 inhabitants. The two exceptions are Hooper Bay (1,114 in 2010) and the City of Bethel (6,113), the regional hub. As shown in Table 3.18-2, the Y-K region population excluding Bethel increased by approximately three percent between 2000 and 2010 due mostly to high birth rates and low out-migration (Abrahamson 2013). However, the affected Doyon Ltd. communities showed a population decrease of 12 percent, probably due to out-migration. Unemployment is a major problem in many remote rural Alaska communities, and the pursuit of economic opportunities appears to be a predominant cause of out-migration (Martin et al. 2008).

The Y-K region population is among the youngest in the state. In 2010, the median age was 26.2 years in the Bethel Census Area and 21.9 years in the Kusilvak Census Area, compared to the statewide median age of 33.5 years. In comparison to the entire state, the Y-K region has proportionally more people under the age of 18 years and fewer in older age groups.

The overall educational level of residents aged 25 to 65 years in the Bethel and Kusilvak Census Areas is lower than that of the state as a whole. More of the region's residents have no high school degrees, and fewer residents have college or professional degrees.

Y-K Region – Economy

With the exception of Bethel, communities in the Y-K region have subsistence-based economies. While subsistence traditions are a foundation for local village economies, no monetary value is assigned to the value of these resources. Subsistence is essential to residents' diets because of the low availability of jobs and the high cost of food in grocery stores, especially in the smaller villages (Abrahamson 2013). However, the value of subsistence is more than replacement cost of food. Subsistence constitutes a way of life, intricately connected to culture and traditions. Subsistence is discussed in greater detail in Section 3.21, Subsistence.

Opportunities for year-round employment are primarily in local government and in retail stores, most of which are owned by Alaska Native village corporations (Shanks 2009). Seasonal sources of income include commercial fishing, fish processing, firefighting, and fur trapping.

In recent years, another source of full-time and part-time jobs has been the exploration and pre-development activities of Donlin Gold. The existing exploration camp accommodated up to 160 people (Donlin Gold no date), and the Donlin Gold workforce in the Y-K region included up to 240 employees (Donlin Gold 2012). The actual number of employees and number of workers at the camp are currently below these high-end capacity limits. Nearly 90 percent of employees in recent years at the Donlin Gold camp have been Y-K region residents, and 9 of 10 supervisors have been from the Y-K region (Donlin Gold 2012). In 2007, approximately two dozen communities in the region provided at least one or two workers for project pre-development activities.

As shown in Table 3.18-4 local government directly employed more than 40 percent of the workers in the Bethel and Kusilvak Census Areas. The region's dependence on the government for jobs is even greater because federal and state dollars indirectly support many of the private

sector jobs in the region. Nearly all of the largest employers in the region are government agencies or private organizations supported by federal funds.

Tribal governments, primarily supported by federal money, exist in Alaska Native communities throughout the Y-K region. They accounted for nearly 1,040 of local government jobs in 2012 (Abrahamson 2013). Alaska Native non-profit corporations administer much of the federal grant money related to health care. With 1,600 workers, the Yukon-Kuskokwim Health Corporation (YKHC), a federally recognized Indian Health Service provider, is the Y-K region's largest private employer (Abrahamson 2013). The YKHC runs the 50-bed Yukon-Kuskokwim Delta Regional Hospital in Bethel and five regional clinics—in Aniak and Toksook Bay in the Bethel Census Area; and in Emmonak, St. Mary's, and Hooper Bay in the Kusilvak Census Area. The YKHC also runs the community Health Aide Program that provides primary health care in 47 village clinics in the Y-K region (Shanks 2009). School districts are also among the largest employers in the Y-K region, with the state paying most of the costs for these school districts.

While government jobs are typically important to village economies such as those in the Y-K region because they provide stability and have relatively high pay and comprehensive benefits, government employment in the region has been flat for a decade and the future of federal funding in particular is unknown (Abrahamson 2013). Agencies in the region such as the YKHC are feeling the pinch of federal funding cuts and are expecting to lay off workers and eliminate programs and vacant positions (The Associated Press 2013).

The Alaska Permanent Fund dividend provides a substantial boost to village economies in the Y-K region every year. The Alaska Permanent Fund was established by the Alaska legislature in 1976 to ensure that all Alaska residents benefited from oil production on state-owned lands. The dividend program distributes an annual payout to every Alaska resident, regardless of age, an equal amount out of the appropriable earnings of the Permanent Fund (Goldsmith 2010a). This dividend has become particularly important in rural parts of the state, as rural households are cash poor, and subsistence harvests can fluctuate dramatically from year to year. Under these circumstances, the cash provided by the dividend is notable, not only because of its size, but also its predictability (Goldsmith 2010b). The program disbursed more than $21 million to residents of the Y-K region in 2012.

Calista is a source of income and employment for its 12,000 shareholders. With record-high annual gross revenues of $404 million in 2012, it became the eighth largest corporation in Alaska. The Calista's subsidiaries are involved in a range of economic activities, including heavy equipment sales, information technology, telecommunications and marketing services, tug-barge services, construction and remote camp facilities management (Anderson 2013; Ragsdale 2013). The corporation paid its shareholders and descendants record dividends of $4.3 million in 2012, bringing to more than $22.3 million dividends and elders benefits distributed since 1994 (Ragsdale 2013).

Commercial fishing has traditionally been the mainstay of the Y-K region's private sector economy. Other than government, commercial fishing is the only major industry that brings in money from outside the Y-K region (Abrahamson 2013). However, fish harvesting and processing jobs are typically only of a three to four month duration, coinciding with the length of the salmon fishing season. Moreover, the performance of commercial fisheries can fluctuate widely from year to year due to changes in fish stock abundance. In recent years, low returns of Chinook salmon on the Kuskokwim and Yukon rivers, as well as elsewhere in Alaska, have

created economic and social hardships in many communities (ADF&G 2012c). Chinook salmon is an important species to the region and the lower runs combined with high fuel prices have made the economics of salmon fishing challenging. However, recent increases in harvests of coho salmon on the Kuskokwim River and chum salmon on the Yukon River have partially offset the decline in Chinook salmon catches. In 2013, the Yukon River commercial fishing for Chinook salmon was closed, but the chum salmon commercial harvest was worth $1.8 million. On the Kuskokwim River in 2013, the commercial salmon fishery was delayed, but the above average price paid for the catch resulted in about $1.2 million in commercial ex-vessel value (ADF&G 2013i).

Several seafood processors and buyers operate in the Y-K region. The number of people seasonally employed by these entities has increased substantially in recent years; by 2012, the number of processing workers had reached 910, more than double what it was in the early 2000s. About three-quarters of the workers are residents of the Y-K region (ADOL 2013b).

Also important to commercial fisheries in the Y-K region is the western Alaska Community Development Quota (CDQ) Program. The CDQ Program was created by the North Pacific Fishery Management Council in 1992 to provide western Alaska communities an opportunity to participate in Bering Sea and Aleutian Islands fisheries that had been foreclosed to them because of the high capital investment needed to enter the fisheries. Twenty coastal villages in the Y-K region are members of the Coastal Villages Region Fund (CVRF), one of six CDQ groups that participate in the CDQ Program. CVRF owns a fleet that runs commercial pollock and crab vessels in the Bering Sea (Abrahamson 2013). In addition, as of 2012, Coastal Villages Seafoods, Inc., a subsidiary of CVRF, operates all of the seafood processing facilities in the Y-K region, including halibut processing facilities in Chefornak, Kipnuk, Mekoryuk, Toksook Bay, Tununak, and Hooper Bay; salmon processing facilities in Platinum and Goodnews Bay; and a fish buying station along the Kuskokwim River, with a tender often located at Napaskiak (NMFS 2012).

In 2012, CVRF earned $115.4 million, with the substantial majority ($101.6 million) of these revenues coming from the harvest, processing, and sale of pollock, crab, and Pacific cod. CVRF reported $29.5 million in net income and spent $27.9 million of that amount for the direct benefit of its 20 member villages in the form of jobs, commercial salmon and halibut fishing opportunities, scholarships, internships, discretionary funding to village governing bodies, and other services and programs (Coastal Villages Region Fund 2013).

Y-K Region – Income and Unemployment

Unemployment rates in the Y-K region are among the highest in the state, and per capita incomes are among the lowest (Abrahamson 2013). Within the region, the Kusilvak Census Area is particularly affected by unemployment; its annual average unemployment rate of 20.7 percent is the highest among all census areas of the state. The other major component of the Y-K region, the Bethel Census Area, had an annual average unemployment rate of 15.0 percent in 2010. While unemployment rates in the region have fluctuated over the years, the trend has shown a marked increase. The 5-year average unemployment rate in the Bethel Census Area for 1990-1994 was 7.6 percent; by the 2008 to 2012 period it was 15.5 percent. In the Kusilvak Area, the 1990-1994 average was 11.2 percent, and 20.6 percent for 2008-2012 (ADOL 2013a). The chronic high unemployment in the region is the result of employment opportunities tending to be seasonal and limited.

Moreover, it is likely that the unemployment rate data for the region underestimates the number of working-age people without jobs because the data include only persons who are looking for work. In the Y-K region, as in other areas of rural Alaska, the employment opportunities are so limited that some people may no longer be actively searching for employment (Robinson 2009). Of the working-age resident population of the Bethel and Kusilvak Census Areas in 2011, about 50 percent were employed at wage and salary jobs, 10 percent were seeking work (i.e., classified as unemployed), and the remaining 40 percent were not seeking work either because they were participating in other activities or were discouraged by the lack of job opportunities (ADOL 2013a). The following description of the regional job market in 2002 is just as applicable to the situation today:

> *In spite of private sector investment and government funding, overall job opportunities are limited. Bethel's job market is the area's largest, and it offers limited variety and few choices. Usually the demand for jobs exceeds available positions. Mismatches between job requirements and applicant readiness frequently occur due to the young age and insufficient training of much of the population. In smaller communities, the choice of employment is even more restricted. School employment, public sector jobs, and some trade and healthcare jobs in essence describe the entire wage and salary job market* (Windisch-Cole 2002).

The Kusilvak Census Area's per capita income was $21,992 in 2011, the lowest in Alaska and less than half the statewide average of $45,665. The Bethel Census Area ranked sixth-lowest at $32,108. Per capita income is relatively low because the region has low average earnings per job. In addition, the region has a large number of self-employed commercial fishermen who earn, on average, less than half of the average annual wage for the region.

Y-K Region – Fiscal Characteristics

Borough governments have not been established in the Y-K region because the tax base is not adequate to support regional governments. As a result, the communities themselves are responsible for basic services and tax administration. Many but not all the communities in the Y-K region have city governments, which typically collect some local taxes, most often sales taxes. Not including the City of Bethel, about 23 communities in the Y-K region have enacted a sales tax. In addition, a few communities collect special taxes—currently, Mekoryuk and Napakiak levy a 4 percent raw fish tax (a tax on the sale of fish to processors), and McGrath levies a 10 percent hotel/motel "bed" tax. Some local governments collect household user fees to operate services such as water, sewer, and washeterias, and have established enterprise funds for that purpose. In addition, a number of local governments are active in the gaming business and have chosen gaming activities, such as bingo and pull tabs, as a way to raise revenue without imposing additional taxes on residents or increasing the charges for public services. The modest budgets of local governments in the region reflect the limited public services they provide (Cotten 2007).

3.18.1.1.2 CITY OF BETHEL

City of Bethel – Population

As the regional hub of the Y-K region, Bethel accounts for more than one-fifth of the region's population. It is Alaska's largest rural community off the state's road system (Shanks 2009).

Between 2000 and 2010, the city's population increased by about 11 percent. This population gain is likely mainly due to in-migration; throughout rural Alaska, high energy and food costs and changing generational expectations are drawing people from small villages to regional hubs such as Bethel (Howe and Huskey 2007; City of Bethel 2011). As in other Y-K region communities, Bethel's population is relatively young, with a median age of 28.7 in 2010.

City of Bethel – Economy

Bethel is the major source for government, education, transportation, and health services in the Y-K region, as well as a major shopping center for food, equipment, clothing, and other products (City of Bethel 2011). As the main port on the Kuskokwim River, Bethel is also Alaska's third-busiest cargo hub, and it is a pass-through for many of the modern commodities that villages in the Y-K region rely on, including fuel and groceries (Yukon-Kuskokwim Health Corporation 2013).

Even though Bethel is the Y-K region's transportation hub, this industry only accounts for a relatively small percentage of the city's jobs. Two other industry sectors—educational and health services and local government—account for nearly half of resident wage and salary employment. Health care is the leading industry, with the primary health care providers being the YKHC and Bethel Family Clinic (a federally funded community health center). Public sector employers include the Kuskokwim Campus of the University of Alaska Fairbanks and the Bethel Regional High School (City of Bethel 2011).

Alaska Native corporations also play an important role in Bethel's economy. The regional Alaska Native non-profit corporation, Association of Village Council Presidents, is headquartered in Bethel. The association dispenses grants and contracts to deliver housing, social and health services to communities throughout the Y-K region. Bethel Native Corporation, a Alaska Native village corporation, has invested in many diverse lines of business, including government contracting, construction, logistical support, environmental remediation, and commercial real estate (Bethel Native Corporation 2013).

While Bethel's economy is predominantly cash-based, subsistence contributes to the economy. Subsistence traditions remain important to many residents of this area. Subsistence constitutes a way of life, intricately connected to culture and traditions. Subsistence is discussed in greater detail in Section 3.21, Subsistence.

City of Bethel – Income and Unemployment

Bethel's development as a regional center has created sufficient public and private sector job opportunities to keep the local unemployment rate low. In recent years the rate for the city was comparable to that of the state. However, Bethel per capita income was substantially lower than the Alaska per capita income, possibly because of the seasonality of some jobs and the preference of some residents to periodically engage in subsistence activities.

City of Bethel – Fiscal Characteristics

The primary source of government revenues for Bethel is from enterprise funds established for city services (water, sewer, solid waste). The city also levies a five percent sales tax, 12 percent hotel / motel "bed" tax, and six percent gaming (pull tabs) tax.

3.18.1.1.3 CITY OF UNALASKA

City of Unalaska – Population

Unalaska is the population center of the Aleutians West Census Area, largely because it is the location of most of the area's seafood processing industry jobs. Other hallmarks of the local seafood processing industry are that Unalaska's population is nearly two-thirds male and of the population of 4,376 in 2010, 2,099 (48 percent) lived in group quarters rather than homes (Abrahamson 2012).

City of Unalaska – Economy

Dutch Harbor is a major port for Alaska's fishing industry. The Bering Sea and Aleutian Islands crab and groundfish fisheries that use Dutch Harbor are unlike the coastal salmon fisheries in other Alaska regions, because they take place far offshore in federal waters. Moreover, they span both summer and winter; consequently, the fisheries provide year-round opportunities for vessels of all size classes, and keep the port facilities in Dutch Harbor operational throughout the year. The quantity of seafood landed at Dutch Harbor is immense; for the last several years in a row, the port was the top ranking seafood port in the nation for pounds of fish landed (Abrahamson 2012).

Of the 1,661 state residents employed in Unalaska in 2011, only 873 (53 percent) were employed outside of manufacturing—that is, outside seafood processing. Among the other industries, 397 residents (24 percent) worked in the trade, transportation, and utilities sector, and 229 (14 percent) had jobs in the local government. Similar to many rural fishing communities, however, most jobs are connected to fishing in one way or another. For example, businesses in the trade, transportation, and utilities sector rely heavily on the fishing industry, and the company Unisea owns not only a seafood processing plant at Dutch Harbor, but also the local hotels and seafood processing worker housing (Abrahamson 2012).

Unalaska is also the home of the western-most container terminal in the U.S. and is one of the most productive ports for transshipment of cargo in Alaska. In addition to product shipped domestically to and from this regional hub, product is shipped to ports around the world with weekly shipments headed to Europe and Asia by container ship and freighter (City of Unalaska no date).

City of Unalaska – Income and Unemployment

Alaska's seafood harvesting and processing industry largely evaded the impacts of the U.S. recession, with seafood prices remaining strong (Forgey 2010). As a result, during the past few years the unemployment rate in Unalaska has been substantially less than the state's rate. As in Bethel, per capita income in Unalaska was substantially lower than that in Alaska, possibly because of job seasonality and periodic participation in subsistence activities.

City of Unalaska – Fiscal Characteristics

The primary source of government revenue for Unalaska is from enterprise funds established for city services (water, sewer, solid waste). The city also levies a two percent raw fish tax and five percent hotel / motel "bed" tax.

3.18.1.1.4 KUSKOKWIM RIVER COMMUNITIES

Kuskokwim River Communities – Population

Between 2000 and 2010, the population of the Kuskokwim River communities excluding Bethel increased by about 2 percent. As in other Y-K region communities, the population of the Kuskokwim River communities is relatively young, with a median age of 26.9 in 2010.

Kuskokwim River Communities – Economy

The economies of the Kuskokwim River communities are similar to those of other small Y-K Region communities, which are discussed above. Local economies are essentially subsistence-based, with opportunities for year-round employment generally limited to local government and retail trade. Subsistence is also discussed in greater detail in Section 3.21.

Commercial fishing is an especially important source of seasonal employment in the Kuskokwim River communities. In 2012, a total of 393,319 salmon were commercially harvested from the Kuskokwim Area. A total of 477 individual permit holders (making at least one recorded landing) participated in area commercial fisheries with an estimated ex-vessel value of $2,040,296; approximately 41 percent above the most recent 10-year average value (ADF&G 2012b). As noted previously, the Kuskokwim River commercial salmon fishery had an ex-vessel value of $1.2 million despite a delayed opening date to aid in conservation of Chinook salmon (ADF&G 2013i).

As of 2012, Coastal Villages Seafoods, Inc., a subsidiary of CVRF, operated salmon processing facilities in Platinum and Goodnews Bay, and a fish buying station along the Kuskokwim River, with a tender often located at Napaskiak (NMFS 2012). Fresh head-and-gutted product is flown to Kenai where it is reprocessed, while frozen product is shipped via barge to Unalaska and then transshipped to final destinations. At times, a salmon processor / buyer has also operated in Bethel. For example, Kuskokwim Seafoods was formed in 2010 to offer more opportunities for fishermen on the Kuskokwim River at or above Bethel to sell their catch closer to home. The firm operated on the seawall in Bethel during season openings. Salmon were weighed and ice-packed on site, and then flown to Kenai for processing (City of Bethel 2011; Mackey 2012). However, the plant closed in 2013 due to poor market conditions, and it is uncertain if it will reopen (Lincoln 2013).

Some sport fishing activity takes place along the Kuskokwim River. Between 2000 and 2010, the greatest number of guide business and licensed sport fish guides were located in the communities of Aniak and Bethel. In addition, there was some activity in the sport fishing industry in the coastal communities of Goodnews Bay and Quinhagak (NMFS 2012).

Kuskokwim River Communities – Income and Unemployment

There are no income and unemployment statistics available specifically for the Kuskokwim River communities. It is likely that unemployment rates in these communities are among the highest in the state and per capita incomes are among the lowest, as they are in other small villages in the Y-K region. See the Y-K region description above for additional details.

Kuskokwim River Communities – Fiscal Characteristics

The fiscal characteristics of the Kuskokwim River communities are similar to those of other communities in the Y-K region. Among the Kuskokwim River communities, only Napakiak levies a tax—a 4 percent raw fish tax.

3.18.1.1.5 KENAI PENINSULA BOROUGH

Kenai Peninsula Borough – Population

Cook Inlet divides the KPB into two land masses, with the more populated area to the east of Cook Inlet. In 2010, approximately 34 percent of the Borough's population lived within the four largest incorporated cities — Kenai, Soldotna, Homer, and Seward. The KPB had a median age higher than that of the state as a whole in 2010. This is consistent with the relatively low percentage of people under 18 years of age, and the relatively high percentage of people over 65. A likely explanation for these demographic characteristics is that more residents of the KPB are remaining in the area when they retire, and a substantial number of retirees from elsewhere in Alaska and even from the lower 48 states are moving to the borough (Shanks and Rasmussen 2010).

Kenai Peninsula Borough – Economy

Resident employment in the KPB is concentrated in the trade and educational and health services sectors. The Borough's economic activity revolves around the visitor and retirement industry, although secondary industries such as oil and gas production and refining also contribute jobs and revenue to the economy.

Proximity to and ease of access from Anchorage has encouraged the development of a large visitor industry in the KPB (ADOL 2013a). The emergence of tourism, which is best represented by the leisure and hospitality industry, as a dynamic sector of the borough's economy has had a positive effect on other industries, with the retail trade and transportation sectors being most affected. Given the Borough's growing reputation as a mecca for retirees, it has been called the "Florida of Alaska" (Shanks and Rasmussen 2010). In-migrating retirees can be considered an industry in the sense that retirees receive most of their income from sources outside the Borough, including social security, pensions, and earnings on investments. New jobs in the retail trade, health services, financial, and construction sectors are created to meet the demand for goods and services of the new residents (Shanks and Rasmussen 2010).

Kenai Peninsula Borough – Income and Unemployment

Over the past decade, the unemployment rate in the KPB has been consistently higher than that in Anchorage and the state as a whole. In addition, the Borough's per capita income was approximately nine percent less than that for Alaska as a whole. The lower income levels likely reflect the seasonality of important industries in the KPB, including commercial fishing and tourism, as well as the lower wage levels in tourism-related retail and service jobs.

Kenai Peninsula Borough – Fiscal Characteristics

The primary source of government revenue for the KPB is from enterprise funds established for city services (water, sewer, solid waste). The Borough levies a three percent sales tax and

collects revenues from property. Increased natural gas production and exploration and an influx of new natural gas infrastructure in Cook Inlet has led to a substantial increase in oil and gas property tax revenues for the Borough (Smith 2012).

3.18.1.1.6 MATANUSKA-SUSITNA BOROUGH

Matanuska-Susitna Borough – Population

The MSB is the third largest borough in the state, both physically and in terms of population. The Borough is the fastest growing region of the state, largely because of its proximity to Anchorage. Between 2000 and 2010, the MSB's population grew by 50 percent, while Anchorage grew by 12 percent and the state as a whole grew 13 percent. The primary source of the Borough's growth was people moving in, making it one of the few places is the state that grew mostly because of migration (Fried 2013b). The large majority of borough residents live along the road system between Willow and Sutton (Fried 2000).

Matanuska-Susitna Borough – Economy

Resident employment by industry data for 2011 show that employment in the MSB is dominated by trade and educational and health service jobs. As discussed above, the Borough is the fastest growing region of the state. Most of the recent growth in the MSB's trade and educational and health service jobs was a direct reaction to the area's population gains. The retail landscape in the Borough has expanded, and the area added the Mat-Su Regional Medical Center in 2006 and the Valley Native Primary Care Center in 2012 (Fried 2013b).

Matanuska-Susitna Borough – Income and Unemployment

Although the unemployment rate in the MSB in 2011 was higher than the rate for the state, employment has grown faster in the Borough than anywhere else in the state. During the past decade area employment grew by over 50 percent, more than four times as fast as Anchorage and statewide. Every industry contributed new jobs during this period, with gains of 1,000 or more in retail, health care, leisure and hospitality, and government. Most of this growth was a direct reaction to the area's population gains, with retail and health care as clear examples (Fried 2013b).

Matanuska-Susitna Borough – Fiscal Characteristics

The primary source of government revenue for the MSB is property taxes. The Borough levies a five percent hotel / motel "bed" tax and a 5.74 percent cigarette and tobacco tax.

3.18.1.1.7 MUNICIPALITY OF ANCHORAGE AND STATE OF ALASKA

Municipality of Anchorage and State of Alaska – Population

The Municipality of Anchorage is the most populated municipality in Alaska. More than 40 percent of the state's population resided within its boundaries in 2010. The population of both Anchorage and Alaska grew between 2000 and 2010. Alaska's population is relatively young, with a median age of just under 34 in 2010; only Texas and Utah have a younger population. In large part, Alaska's population is young because it has a low percentage of residents over age

65; at less than 8 percent it is the smallest share of any state. One reason for the relatively low median age is that many of the state's seasonal and transient jobs are more attractive to younger, more mobile workers, as is the lifestyle these jobs demand (Hunsinger 2012).

Municipality of Anchorage and State of Alaska – Economy

As discussed above, Anchorage is the most populated municipality in Alaska. As Alaska's population center, Anchorage has the largest labor pool. It is also the state's financial, commercial, and cultural center as well as the major transportation hub (ADOL 2013a).

The top three sectors in Anchorage's local economy in terms of employment are the trade, transportation, and utilities sector; educational and health services sector; and the leisure and hospitality sector. The Port of Anchorage, Ted Stevens International Airport, the Alaska Railroad, and the highway system all combine to make the municipality the primary cargo distribution center in the state (ADOL 2013a). Retail trade is also a large employer in Anchorage, but employment in the sector has shown little growth over the past decade. The educational and health care sector is benefiting from a demographic situation where Anchorage has both an aging baby boomer population and a young, under-20 generation. Most of the economic activity in the leisure and hospitality sector comes from local residents, but the tourist component is also important. Restaurants make up the largest share of the industry, followed by accommodation and then entertainment (Fried 2012; Fried 2013c).

Although the oil and gas industry employs less than five percent of all Alaska workers, it has driven much of the growth in the state's economy for the past 40 years. It is estimated that oil production (not including support activities) directly accounts for a quarter of total gross state product, and approximately one-third of all jobs and personal income in the state can be traced to the oil and gas industry (either due to work in oil production-related activities, spending of the state's oil revenues, or the Permanent Fund dividend) (Goldsmith 2007; Goldsmith 2010a). In addition, the federal government has long played an important economic role in Alaska. By 2008, per capita federal spending in Alaska was approximately 71 percent above the national average (Goldsmith 2008b). Currently, about a third of the jobs and personal income in Alaska can be traced directly or indirectly to all types of federal spending (Goldsmith 2010a).

Employment in many of the state's other economic sectors—including trade, transportation, and utilities sector; educational and health services sector; and state and local government—rises and falls largely because of forces affecting the above two economic drivers (Robinson 2012). In terms of direct employment, local government is a particularly important sector outside Alaska's urban centers. As noted above, government jobs are important to village economies because they are year-round and relatively high paying. Due to the aging of Alaska's population, the state's health care industry has been a standout in terms of job growth. Health care employment remained strong even through the state's short period of overall employment loss during the recent recession. Retail trade remains the economic sector with the most workers, but employment in the sector has been flat over the past decade (Robinson 2012; Schultz 2013).

Municipality of Anchorage and State of Alaska – Income and Unemployment

Unemployment rates in Anchorage and the state as a whole are close to pre-recession lows. Alaska's reliance on the oil industry helped the state weather the recent economic downturn much better than the rest of the country. Oil prices remained high, supporting state revenues

and employment. In addition to jobs, oil revenues fund state and local government operations, which further stabilize the economy (Forgey 2013). In 2011, Anchorage per capita income was more than $5,000 higher than the Alaska per capita income. The municipality is home to many of Alaska's highest paying jobs, including nearly a quarter of those in the oil and gas industry (Fried 2013a).

Municipality of Anchorage and State of Alaska – Fiscal Characteristics

Anchorage's revenues have modestly increased over the past six years (Municipality of Anchorage 2013). The largest share of general government revenues is derived from property taxes. Personal property tax revenues are variable year to year due to changes in the mill rate and changes in the assessed value of business personal property, state oil and gas property, and mobile homes. Revenues generated by enterprise funds established for the city's services contribute the next largest share. Anchorage's visitor industry is an important source of hotel / motel "bed" tax and rental vehicle tax revenues.

The fiscal health of Alaska is closely tied to the fortunes of the oil and gas industry in the state. The state receives revenues from oil and gas activities in the form of various taxes and fees collected from the oil and gas industry, including a severance tax based on the value of oil produced; property taxes (although most of this tax revenue is passed through to the local jurisdiction within which the infrastructure is located); corporate income taxes; and royalties, bonuses, and lease payments based on the value of oil production on state land. In 2012, the $8.86 billion in oil and gas industry-related revenues the state collected accounted for 56 percent of the state budget and approximately 93 percent of the state general fund. The general fund pays for almost every state service, including the education system, transportation facilities, public health and safety services, and a host of other programs throughout Alaska (Alaska Department of Revenue 2013; Fried 2013a; Resource Development Council for Alaska 2013).

The oil and gas industry is also important to Alaska's fiscal health and overall economy because it is the funding source for the Alaska Permanent Fund, which is Alaska's largest financial asset. Since the Permanent Fund's inception, the Alaska constitution has required that 25 percent of royalties be deposited into the fund. In addition, annual deposits to offset the erosion of the value of the fund due to inflation have been made since the early 1980s, and on occasion, special deposits have also been added to the principal, which cannot, by law, be spent. The fund is invested in a diverse portfolio of stocks, bonds, and real estate, and has grown in value to nearly $46.3 billion as of August 2013 (Goldsmith 2010b; Alaska Permanent Fund Corporation 2013).

Mining added few jobs until the 1990s, when mineral and metal production – chiefly zinc and gold – increased sharply as a result of relatively strong prices (Leask et al. 2001; Gilbertsen and Robinson 2003). Alaska mineral production value increased from $1 billion in 2003 to $3.4 billion in 2012, due largely to higher prices rather than changes to production amounts (Fried and Robinson 2008; Athey et al. 2013). As of 2012, the mining industry accounted for 4,366 jobs (Athey et al. 2013). The mining industry in Alaska (and elsewhere) has encountered large barriers to entry. Finding, developing, and producing the minerals and metals is time-consuming and expensive, and because mineral and metal prices are highly cyclical, companies must time their activities so that mines do not become active as mineral and metal prices decline.

3.18.1.2 LOCAL PUBLIC INFRASTRUCTURE AND SERVICES

This section contains a discussion of the existing local infrastructure and public services within Y-K region communities associated with the EIS Analysis Area. A wide range of public services and facilities are offered, with concentrations in the larger cities. Some communities are located in organized boroughs, which are vested with local government powers, including the power to tax. All organized boroughs must operate municipal school districts and they may also provide additional public services to the populations within their jurisdictions. However, the communities of the Y-K region are located in an unorganized region of the state; except within some larger incorporated cities such as Bethel, public infrastructure and services in these communities are mainly provided or funded by the state or, in many instances, funded by the federal government and provided by or through tribal organizations. Tribal governments in the region even provide community services that would ordinarily be administered privately, from village utilities to health clinics (Abrahamson 2013).

The provision of public services and infrastructure across Alaska is expensive, particularly in rural areas. For example, the costs to construct public buildings—including schools, health clinics and hospitals—in remote areas is on the order of twice as much per square foot as in Anchorage (Foster and Goldsmith 2008). The higher cost per square foot for rural buildings is due to a combination of higher input costs, especially freight costs (barge and air); limited supply of specialty labor (mechanical, electrical); challenging foundation conditions, including areas with abundant permafrost; weather delays; remote logistics; and the high cost of fuel. Moreover, the harsh winter climate of Alaska shortens the useful life of roads and public buildings. As a result of these high costs, and reductions in state and federal assistance, funding of public facilities and services is a constant challenge for local service providers in rural communities such as those in the Y-K region (Cotten 2007).

3.18.1.2.1 LAW ENFORCEMENT/FIRE/MEDICAL SERVICES

Police services in the Y-K region are only provided by local police departments in the larger communities such as Bethel, Hooper Bay, and Emmonak; law enforcement in other parts of the region is primarily the responsibility of the Division of Alaska State Troopers under the Alaska Department of Public Safety. The division is composed of posts that provide patrol, enforcement, and search and rescue to all areas of the state and a central headquarters (Alaska Department of Public Safety 2013b). The division has four bureaus: the Alaska Bureau of Investigation investigates major crimes; the Alaska Bureau of Alcohol and Drug Enforcement enforces laws against bootlegging and illegal drug distribution throughout Alaska; the Alaska Bureau of Judicial Services is responsible for prisoner transports and providing security for Alaska courts; and the Alaska Bureau of Highway Patrol is responsible for highway safety (Alaska Department of Public Safety 2013b).

Alaska State Troopers attempt to promptly respond to emergencies, felony, and misdemeanor cases. Their efforts, however, are often hampered by delayed notification, long response distance, and the uncertainties of weather and transportation. In some Y-K region communities Village Public Safety Officers (VPSOs) assist their communities in all aspects of public safety, including law enforcement, fire protection, and search and rescue (Alaska Department of Public Safety 2013a). VPSOs are employed by Alaska Native non-profit corporations and supervised by the Alaska State Troopers. In communities associated with the VPSO Program, citizens are afforded immediate response to all emergencies without delays caused by weather, distance, or

budgetary restraints. Although VPSOs are not expected to handle high-risk or complex investigative situations, they are the "First Responders" to all volatile situations in their communities. Part of their job involves stabilizing volatile situations and protecting crime scenes until the State Troopers can arrive. VPSOs frequently conduct and complete misdemeanor and minor felony investigations with assistance provided by the State Troopers (Alaska Department of Public Safety 2013a). All communities in the Y-K region are covered by emergency "911" service.

While some communities in the EIS Analysis Area have fire departments staffed with career firefighters, fire protection services in most communities are provided by volunteers. Generally, these professional and volunteer fire departments are responsible for all structural firefighting within their jurisdictional boundaries. Wildland fire management in Alaska is an interagency effort involving the BLM, Alaska Fire Service; ADNR, Division of Forestry; and the U.S. Forest Service. The Alaska Interagency Coordination Center located at Fort Wainwright serves as the focal point for initial attack resource coordination, logistics support, and predictive services for all state and federal agencies involved in wildland fire management and suppression in Alaska. In addition, the Alaska Interagency Coordination Center is the focal point for coordinating and providing support for all-hazard emergency response activities for federal landholding agencies in Alaska (Alaska Interagency Coordination Center 2013). The BLM Alaska Fire Service provides wildland fire suppression services for all U.S. Department of the Interior and Alaska Native corporation lands in Alaska (Alaska Fire Service 2013).

Five major hospitals provide full medical services to communities in the EIS Analysis Area—three in the Municipality of Anchorage, one in Fairbanks, and one in the MSB community of Palmer. Health clinics are located in the majority of other communities in the EIS Analysis Area, but trauma cases, as well as serious illness cases, must be sent to hospitals. Transport in emergency situations is usually by air (i.e., airplane or helicopter). Medical facilities in the Municipality of Anchorage, Palmer, and Fairbanks provide air medical services. Most communities provide emergency medical services, which, in many cases, are delivered by local fire departments. A number of regional and community organizations administer health and social service programs for Alaska Natives. Alaska Natives are eligible for federal health care through the Indian Health Service.

3.18.1.2.2 SCHOOLS

Schools in the EIS Analysis Area communities vary greatly in size. High schools in Anchorage may serve more than 2,000 students. Schools in the more densely populated areas of the KPB and MSB may serve hundreds and are similar to schools in small cities in the rest of the U.S. In contrast, many schools in rural communities are small, some with 30 or fewer students at a variety of grade levels (Alaska Teacher Placement 2013). The State of Alaska does not provide state funds for schools with fewer than 10 students.

The Y-K region encompasses several school districts which combined include dozens of schools. However, there are no local schools in some Y-K region communities; children are home-schooled or attend schools in other areas. The State of Alaska provides parents with the option of home-schooling their children. Under state law, children schooled at home by their parents or guardians are exempt from the compulsory school attendance law. Parents are not required to register with the state or their local school district, and no testing or other requirements are placed on home-schools not funded with public dollars. The Alaska Department of Education

and Early Development oversees the regulation of correspondence schools available to home-school families. This department listed 31 correspondence schools on its website. Of the total, 14 of the schools are available to students from all over the state, while 17 of the schools serve students in individual school districts (ADEED 2013).

Average per-student cost in Alaska is higher than any other state, reflecting the costs associated with maintaining educational services among often extremely widely geographically dispersed communities (BLM 2002a). State law establishes a formula by which a guaranteed level of funding known as "basic need" is determined for each of Alaska's school districts. This formula is weighted in favor of small, isolated sites. It takes into consideration the total number of students enrolled in the entire district, the number of students in each school within the district, regional cost differentials ("district cost factors"), special needs funding, intensive services funding, and enrollment in correspondence programs.

The components of public school funding are state aid, required local contribution, federal Title VIII impact aid, special revenues, and other sources. Federal impact aid provides funds to school districts for children with parents living and/or working on federal property "in lieu of local tax revenues." Municipalities with taxing power are required to provide their coterminous school district with the local contributions to assure the equivalent of a 2.65 mill tax levy on the full and true value of the taxable real and personal property in the district; and not to exceed 45 percent of the district's basic need for the preceding fiscal year (ADEED 2012). Many of the school districts in the Y-K region are primarily reliant on state aid for the operation, construction, and maintenance of their schools, as they receive no local contributions or federal impact aid.

3.18.1.2.3 UTILITIES

Many rural communities in Alaska do not have community piped potable water or sewage treatment systems. Households may lack flush toilets and running water. Water in these communities is typically provided by individual household wells or via hauled water from community systems. Sewage treatment facilities commonly consist of individual septic systems or communal sewage lagoons. Refuse in communities within the EIS Analysis Area is generally hauled to borough, city, Alaska Native village, or private sanitary landfills. Most rural communities have Class III landfills that do not meet the requirements of the federal Resource Conservation and Recovery Act (Colt et al. 2003). Small, rural communities often struggle to fund adequate operation and maintenance of water, wastewater, and solid waste facilities. Communities lacking adequate water and sanitation services face additional health concerns. Section 3.22, Human Health, contains information regarding public health issues.

Alaska's electrical energy infrastructure differs from that in the rest of the U.S. in that there is no extensive infrastructure of transmission interties that span the state. The electrical needs of some communities in the EIS Analysis Area are currently served by public utilities connected to a regional transmission line owned by the Alaska Energy Authority. These utilities include Chugach Electric Association, Matanuska Electric Association, and Anchorage Municipal Light & Power. However, in the smaller, more isolated communities, such as those in the Y-K region, electricity is generated by isolated diesel generators that are not tied into regional grids. Many of these electric systems are run by tribal governments. Alaska Village Electric Cooperative, a non-profit electric utility, serves a number of communities in the region with tribal

governments hiring the plant operators and overseeing the day-to-day operation of the power generating and distribution plants.

Almost all of the electricity generated in the Y-K region is done using fuel oil; however, about seven communities in the region have wind turbines producing a portion of their electricity (Fay et al. 2012). Fuel oil for diesel generators is generally delivered during the summer, although some fuel is shipped by plane. Each community is required to maintain bulk tank farms to store the fuel. The EIS Analysis Area communities that are supplied with natural gas are limited to several communities in the KPB, MSB and the Municipality of Anchorage. ENSTAR Natural Gas supplies natural gas produced in Cook Inlet to many residences and businesses in Southcentral Alaska.

Residents of the Y-K region have the highest energy costs in the nation at $7 to $12 per gallon for diesel heating fuel; diesel generated electricity is delivered at a cost ranging from $0.58 to $1.05 per kilowatt hour. In less than 5 years the percentage of income that must be utilized for home heating and electricity has risen from 40 percent total income, to over 60-75 percent total family income (Nuvista Light & Electric Cooperative 2013). In contrast, Anchorage residents pay a much lower percentage of their household income for utilities. The main reason for the cost difference is that most rural communities rely on fuel oil for both heating homes and generating electricity. Fuel oil is far more expensive than natural gas, which, as mentioned above, is only available in Anchorage and a few other communities (Goldsmith 2008a).

In addition, the day-to-day operating costs of community water, sewer, and electric utility systems in rural Alaska are high (Colt et al. 2003). With a small customer base and limited income, many, if not most, utility systems in the Y-K region are not self-supporting. The difference between customer payments and the actual cost of day-to-day operations is made up by the power cost equalization program, by general city revenues, by several state and federal assistance programs, and by the deferral or avoidance of maintenance, with public agencies often picking up the bill for major repairs or premature replacement (Colt et al. 2003).

3.18.1.2.4 GOVERNANCE CAPACITY

In addition to employment and services, the governmental sector in the Project Area represents a dynamic source of leadership - anticipating, planning, and responding to changes on behalf of the community residents. The governmental sector is a major source of employment in the Y-K region, responsible for 51 percent of resident employment in 2011 (Table 3.18-4). The governmental sector also provides a wide range of services, summarized above. However, this is an incomplete picture of the importance of local and regional governments without taking into consideration local perspectives on the dynamics of governance capacity.

During the scoping meeting in Akiak in January 2013, a tribal leader spoke about the importance of local tribal governments and asked that the EIS provide information that would allow the local governments to plan for likely changes. This led to a project in the summer of 2015 to interview local and regional leaders about their leadership strengths and challenges, and the issues they perceive may arise if the Donlin Gold Project were to go forward.

Some 21 tribal and municipal leaders were interviewed in seven central Kuskokwim communities.[2] In addition, five leaders for two regional service organizations, Association of

[2] The central Kuskokwim River villages included: Stony River, Sleetmute, Crooked Creek, Chuathbaluk, Aniak, Upper Kalskag, and Lower Kalskag.

Village Council Presidents and Yukon-Kuskokwim Health Corporation, were interviewed in Bethel.[3] The interviews explored perspectives of local and regional leaders on existing leadership strengths and challenges, as well as their evaluation of organizations' capacities to respond to challenges that may arise if the proposed Donlin Gold Project were to go forward. Additional detail on method and findings of the interviews is found in a technical report (AECOM Forthcoming).[4]

Modern leadership in local and regional government in the EIS Analysis Area builds on the long and rich traditions of the predominantly Yup'ik residents. Leaders were traditionally seen as widely experienced and patient, dedicated to listening to the tribal members, and willing to speak out on their behalf as necessary (Fienup-Riordan 1990). In the modern era, tribal governments were formalized as either Indian Re-organization Act governments with constitutions, or recognized as Traditional Councils. Building on the land claims movement of the 1960s, many regional tribal service organizations were established under the Indian Self-Determination and Education Assistance Act of 1975 to administer services formerly provided through the Bureau of Indian Affairs (Case and Voluck 2002). During the 1980s the State of Alaska promoted establishment of municipal governments throughout rural Alaska. While the proliferation of governmental institutions was sometimes confusing (Morehouse et al. 1984), in southwestern Alaska, regional organizations have shown particular political sophistication in responding to complex natural resources regulatory disputes (Brelsford 2003).

Current Leadership Strengths

The participants expressed pride and confidence in the important strengths in leadership among current tribal, municipal, and regional organizations. Importantly, the strengths identified were not framed in terms of formal education or technical expertise. Instead, the most important strengths, in the view of these interviewees, can be seen as corresponding to important Yup'ik cultural values: working together, connecting to the people and their concerns, and involving young people.

Local leaders emphasized that working together within the community and among the community organizations was the foundation of their strength:

> *Working together as one rather than going in all separate directions. We help each other. We are working on trying to help each other with different projects and things that go on in town, like as one. I notice that when there are community meetings there is a lot more involvement than what there used to be, I believe* (Laura Simeon, Tribal Administrator, Aniak; AECOM Forthcoming).
>
> *It seems to me that this is the first council in many years that is unified or has the same desires for our community* (Evelyn Thomas, Tribal President, Crooked Creek; AECOM Forthcoming).
>
> *I think now the city and the tribe have a better working relationship. We meet often and try to provide services and working together with funding because we work for the same community and the same people (*Megan Leary, City Manager, Aniak, AECOM Forthcoming).

[3] Interviews were planned for leaders of the Kuskokwim Native Association. However, as of July 2015, the organization was inactive.

[4] The interviews were conducted with the permission of the participants. In order to acknowledge the contribution of individual leaders, with permission of the interviewee the quotes are attributed by name. If an interviewee preferred to remain anonymous, then the quote is attributed generically to a leader from the particular village.

Another important strength was seen in the leadership dedication and connection to the people. This manifested in a variety of ways, but most especially in long time service. Importantly, two interviewees emphasized the powerful Yup'ik tradition of coming together in times of crisis.

> *We have a great, great resource of leaders here in the Y-K Delta. They vary all the way from strong tribal councils and presidents and chiefs of those councils through you know… local government. There is no municipalities but through city governments as well. We see very active and passionate leaders who maybe have no elected leadership experience all the way to people who have been elected 20-30-40 years and have been able to develop relationships with federal and state leaders both here in the Y-K Delta, at the state level throughout the nation. There is a whole range and a whole gamut of folks who are very passionate about the Y-K Delta and our communities and our families here in trying to ensure that we have, that our kids have a better life than we do* (Dan Winkelman, President/CEO, YKHC, Bethel; AECOM Forthcoming).

> *I've seen a lot in communities where somebody passes away and the community tends to come together and surround that person with the support and comfort that they need. It's not only when they pass away but when somebody is missing and everybody comes together and works together to find that person. Or to provide for their needs if there's a fire, you know, any time there is a disaster the communities come together to help support each other in ways that they might not if the disaster hadn't happened* (Martha Whitman-Kassock, AVCP Tribal Services Director, Bethel; AECOM Forthcoming).

Finally, interviewees emphasized the importance of involving young people in order to cultivate the next generation of leaders:

> *We had a lot of participation and a big push to get kids involved but funding is always a problem* (Denise Reeds, Mayor, Kalskag; AECOM Forthcoming).

> *It [composition of the council] is mixed with lots of the younger people, and also those with a lot of experience. So, we are able to learn from them. Like me, I have been on for four years and I am still learning. Also, being new to first chief I have a lot of role models to look up to and I have a lot of support* (Jenette Hoffman, Tribal President, Aniak; AECOM Forthcoming).

Current Leadership Challenges

The participants were frank about some of the challenges facing local leaders and organizations. Revenue limits, turnover, lack of involvement, and limitations of communication infrastructure are key examples. Leaders also noted that the communities struggled with lack of employment and substance abuse, which obstructed the effectiveness of local leadership initiatives.

In regard to limited revenues, leaders noted this is a problem that is likely to grow with budget cuts at the state and federal levels.

> *Enough funding, just enough to provide basic services. That is the biggest challenge* (Evelyn Thomas, Tribal President, Crooked Creek; AECOM Forthcoming).

> *I think it is funding. We have a lot of ideas and things we want to do to expand and help the community grow and provide more services but with the state funding being cut…finding funding through the state and federal government is a lot more challenging*

now with all the budget cuts (Megan Leary, City Manager, Aniak; AECOM Forthcoming).

There's not enough money. The Indian Health Service provides about 50 percent of what the need is…..the needs are great. We are one of the few areas in rural Alaska that is actually projected to grow in the next 20-30 years (Dan Winkelman, President/CEO, YKHC, Bethel; AECOM Forthcoming).

Local tribal and municipal governments also struggle with rapid turnover among the councils and administrative staff.

Well, everybody in the office quit and we had to start over….everything came to a complete stop (Timothy Andreanoff, Tribal President, Sleetmute; AECOM Forthcoming).

There is a lot of turnover in the tribes! Some tribes have new administrators every 6 months to a year (Martha Whitman-Kassock, AVCP Tribal Services Director, Bethel; AECOM Forthcoming).

Several participants noted the difficulties of lack of involvement, lack of personal ownership in solving community problems, lack of sufficient local presence in some organizations, and the constraint of limited communication technology.

Nobody else wants to be involved with us. They can complain but they don't want to try and do anything about it. They expect us to do everything for them or have everything handed to them (Alyssa Willis, Tribal Clerk Stony River; AECOM Forthcoming).

Funding and time, you know we all wear three or four hats so hard to find time ~~sometimes~~ and get everybody schedule right. Sometimes the kids you know, the kids are always there but not the parents, it's hard to get them involved (Denise Reeds, Mayor and Tribal Administrator, Lower Kalskag; AECOM Forthcoming).

I think that a leadership challenge for us is that people from the region prior to the creation of YKHC had become accustomed to ~~like~~ agencies like the Bureau of Indian Affairs, and Indian Health Service directing the care of their needs and individuals lost that sense of control over their own future. Now, hopefully YKHC is changing that but we are still struggling with getting grass roots interventions going on in the villages. Getting people to own their own health care initiatives and saying: We are going to do things differently in this village. We are going to change our health, and not expecting somebody else to do it for us. [These] are the big turnaround points that we need to get behind. Because we [YKHC] can't make people healthy the individual controls their own health and can utilize YKHC resources but we can't make them healthy (Joseph Klejka, M.D., Medical Director, YKHC, Bethel; AECOM Forthcoming).

We've got organizations that are supposed to be providing some type of service and benefits to the people in the region yet they are located in Anchorage. They don't live here so they don't really understand the challenges. They think they do. … [The] local community tries to talk to them but people who are not from the community don't listen. So that's one of the biggest challenges. It's not necessarily the local community that will have challenges: are the people who are in charge, are the people who work on these projects, are they willing to listen to the local concerns? (Myron Naneng, President, AVCP, Bethel; AECOM Forthcoming).

> *So the current challenges I think faced between AVCP and the Tribes is the communication. …the internet is not the greatest, the cell phone service is not the greatest….the technology and how fast it is moving in the rest of the world compared to where we are out here* (Martha Whitman-Kassock, AVCP Tribal Services Director, Bethel; AECOM Forthcoming).

The small tribal and municipal governments operate in an environment where lack of jobs and substance abuse create ongoing challenges.

> *There's no employment base. There's no money, there's nothing to entice investment in our community therefore we have to create the opportunity* (Evelyn Thomas, Tribal President, Crooked Creek; AECOM Forthcoming).
>
> *…economic development, that's what we need to get sustainability to our community* (Henry Aloysius, Tribal Vice President, Lower Kalskag; AECOM Forthcoming).
>
> *More people working. People tend to be happier; they have a better outlook on life…* (Cheryl Mellick, ICWA Worker, Sleetmute; AECOM Forthcoming).
>
> *It's big right now. I don't even know what do….. People can just come in with the plane and can fill up a whole suitcase load [of alcohol]. I've seen that. Then everybody's there [at the home with alcohol] for a whole week* (Mary Willis, Tribal President, Stony River; AECOM Forthcoming).
>
> *Alcohol is the main problem around here too. The surrounding villages – alcohol accidents, domestic violence and cases where people die and we don't know what happened. There's a lot of cases like that too. Some are not solved so it's hard* (Doris Mute, Tribal Services Accountant, AVCP, Bethel; AECOM Forthcoming).

Future Challenges

The participants identified several future challenges, including the critical importance of local hire and training, the need for new services, and the potential for need substance abuse prevention programs. Most local leaders had a working knowledge of the proposed Donlin Gold Project, and of potential risks and benefits.

One of the most important factors that would influence the balance of risk and benefit in the future would be implementation of effective local hire and training programs.

> *We know that there might be more job opportunities for young people but one of the major impacts that I know for AVCP is to try and provide some trainings so that these young people have the opportunity to get jobs that they create. And the ultimate thing is that do they really want to go to work? When AVCP provides a lot of support and we want them to have that motivation to support themselves. Get away from that [view]. That AVCP will provide everything for them mentality* (Myron Naneng, President, AVCP, Bethel; AECOM Forthcoming).
>
> *I just want to reiterate the need to hire local. If this is going to be a project that impacts the entire region we should have our own people working on the project and not shipping people in from out of town so then there's an ownership of the project with the entire region* (Martha Whitman-Kassock, AVCP Tribal Services Director, Bethel; AECOM Forthcoming).

> *What we've been trying… what we've been doing… [is] training like operators, truck drivers and getting their CDL [Commercial Driver's License] stuff. We don't have the… information where to send them. It's all private sector that's doing it…* (Henry Aloysius, Tribal Vice President, Kalskag; AECOM Forthcoming).

> *We need more certified heavy equipment operators. And some trainings for the high school kids that are getting out of school. Administrator positions, and accountants, because pretty soon we are going to need them* (Timothy Andreanoff, Tribal President, Sleetmute; AECOM Forthcoming).

Regarding future services, several leaders noted that with a major development project, there may more economic activity affecting community infrastructure, more potential for revenues, and more demand for village/city services.

> *What revenues will be made out of the mine that the communities can get? Like the oil fields up in North Slope. They have a borough up there that provides revenue sharing to each of their member villages and even other fields like NPRA where revenue sharing is provided to the communities up there so revenue sharing from the mine. How much impact is this going to have? With its current state of affairs, with its budget, how much money is going to be removed from the ability to provide it to the communities for the benefit of the rest of the state? You know the State of Alaska gets all its monetary benefits from rural resources – little is returned to the communities* (Myron Naneng, President, AVCP, Bethel; AECOM Forthcoming).

> *More income because more people could be hooked up [connected] to the water system and afford to pay for it… and pay electric bills* (William Nesbit Jr., City Council Member, Chuathbaluk; AECOM Forthcoming).

> *The biggest challenge would probably be access to care for our patients…I've seen that [cost of tickets] become a significant barrier to care and that's very challenging to us and troubling. Access to care is one of the biggest issues---not being able to afford a ticket in to Bethel or to a sub-regional clinic is probably the number 1 issue that I have seen…* (Dan Winkelman, President/CEO, YKHC, Bethel; AECOM Forthcoming).

> *There is going to be a lot more flow of people and goods. Which will utilize our airport more, I hope. Transporting things and people. I think we are going to see more of an influx of income with employment, if it were to happen. And if we can work thing out in a way that we are working together mutually, there might even be some revenue resource connection there, directly with the city, which would be great* (Bill Wilson, Mayor, Aniak; AECOM Forthcoming).

Participants recognized that increases subsistence abuse and other behavioral health issues could arise with new employment and income. One interviewee offered a particularly nuanced perspective, noting that many people in the region believe that new jobs will alleviate some of the despair and give new hope to young people in the villages. At the same time, for some people, new income levels may result in increased behavioral health issues. The outcome cannot be predicted at present, so it will be necessary to monitor and respond.

> *Well, if they [Substance Abuse, Suicide Rates, domestic violence, behavioral health issues] do go up… that would be a huge challenge for us because we already don't have the resources to cover it. We are already out-stripped. We have inpatient alcohol treatment, and inpatient inhalant treatment in Bethel. We are having an explosion, and*

> *this is true everywhere in the country, of heroin use. We have no treatment program for heroin abuse [in Bethel]. Anchorage is overwhelmed, they can't get to people fast enough. There are months and months of wait lists to get them into treatment. If any of those problems were to get worse, I don't think we have good solutions. It would just overwhelm us (*Joseph Klejka, M.D., Medical Director, YKHC, Bethel, AECOM Forthcoming).

Responding to Challenges

Several leaders spoke of the importance of grass roots community-building and program development:

> *You know right at this time there is a feeling of hope and looking to the future because we were able to provide jobs for the last five years and people are starting to understand that it does take time, and we have time to get ready. And we have been getting state programs to get people trained in certain areas; we have our own environmental people on staff now. We administer our own IGAP [Indian Environmental General Assistance Program] program. We partnered with USGS [United States Geological Survey] to get water flow and contents of the creek already. So we are preparing our village for the new day that is coming, trying to -- with the best of our ability* (Evelyn Thomas, Tribal President, Crooked Creek; AECOM Forthcoming).

> *Hopefully we can get more grant programs, hopefully. Have a community-building where we can hold activities trying to keep people busy* (Rachel Konteh, Tribal Chairman, Chuathbaluk, AECOM Forthcoming).

> *Then talking about how we don't have any sober activities maybe they can, since they are going to be part of our river communities here. Maybe for one holiday they go to Crooked Creek and do something, the next holiday they come to Sleetmute and do something. Not fund it all but maybe get together with the council and see how they could help bring some of these activities to our community and make them I guess worthwhile that people would actually want to go* (Cheryl Mellick, ICWA Worker, Sleetmute; AECOM Forthcoming).

Another common thread focused on an increased need for counseling services, primarily for alcohol dependence. The effectiveness of these counseling services would increase if they were located in the region, and closer to home in the community.

> *Have some counseling services; prepare people to come in if we have the resources. Make sure we have the resources for people to come in and give counseling* (Annie Fredericks, Acting Tribal Administrator, Chuathbaluk; AECOM Forthcoming).

> *It would be a lot easier if there was someone in Aniak, because people don't want to travel for this [Counseling or treatment]. If someone could come into the community. I think it would be more beneficial and probably have a better outcome* (Cheryl Mellick, ICWA Worker, Sleetmute; AECOM Forthcoming).

> *No one's been very interested in saying that I have a problem I need to grow up and better myself maybe. So I've been thinking about how can I use my ICWA funds and bring in someone that can have… that can be here for a while for those people and to be ready at hand, instead of… bringing people away from their village or family because I'm thinking of something… it's got to be scary or really overwhelming to them, they already have a problem* (Mary Willis, Tribal President, Stony River; AECOM Forthcoming).

Local leaders recognized that the proposed Donlin Gold Project would evolve over time, and emphasized the importance of close communication with Donlin Gold:

> *I'd like to see increased education and awareness. I know Donlin sends out a newsletter and updates kind of where they are at but more of a one on one type of communication between the tribes and Donlin or the tribes and updates on the project, increasing the education they get and the awareness they have about the project* (Martha Whitman-Kassock, AVCP Tribal Services Director, Bethel; AECOM Forthcoming).

A very important role in responding to potential changes was to remain educated and aware of project impacts in order to protect, speak for, and advocate for their lands, people, and region.

> *We suggest they speak up for or against it. Have a voice. Talk to their legislator to get more information on what should they do in case things happen. Think of how they could protect themselves before these things could happen* (Annie Fredericks, Acting Tribal Administrator, Chuathbaluk; AECOM Forthcoming).
>
> *If it's going to affect our river, ~~you know~~ our people… we would have to advocate for them* (Denise Reeds, Mayor, Lower Kalskag; AECOM Forthcoming).
>
> *I realize that there is the downside, there is going to be the potential for a watering down of the cultural values. I think we can avoid that as long as we continue to really focus on the importance of cultural values and traditions.... It is going to take intentional effort. Without intentional effort, it will water down the cultural values* (Bill Wilson, Mayor, Aniak; AECOM Forthcoming).

Governance Capacity Conclusions

Local leaders express confidence and pride in the strengths of their local leaderships, often articulated in terms that reflect Yup'ik cultural values. Yup'ik communities still aspire to a strong sense of community cohesiveness. At the same time, leaders were frank about the challenges and limitations currently impeding the work of local and regional governments and service providers, particularly the problem of funding constraints and the likelihood of reduced state and federal allocations in the future.

If the Donlin Gold Project were to go forward, these leaders have thoughtful insights about the challenges this may bring to local and regional governments and service providers. Key examples include a focus on local hire and training, an increased need to monitor impacts and speak up for the residents, increased demands for services, and ongoing attentiveness to potential behavioral health impacts.

In all, leaders demonstrate the intention to persevere, respond, continue to work together to build a better future. While the leaders did not predict the specifics of future challenges and responses, their convictions were strong about the critical role of local and regional leadership in facing a complex future.

3.18.1.3 CLIMATE CHANGE

Climate change is a factor in maintaining infrastructure in Alaska. Climate change may induce riverine and coastal erosion, increase scour, increase aufeis or glaciation, and cause subsidence with melting permafrost. These processes can increase maintenance requirements for roads, airstrips, community facilities, utilities, and flood / erosion control structures, which can increase

the cost of upkeep for infrastructure. Several communities in the EIS Analysis Area have developed Hazard Mitigation Plans that describe local erosion concerns for critical infrastructure that may be tied to climate change. Section 3.26, Climate Change, describes current observations and trends.

3.18.2 ENVIRONMENTAL CONSEQUENCES

This section describes potential impacts on socioeconomic conditions within the EIS Analysis Area under each alternative. The characteristics of a project that affect the scope, location, and magnitude of socioeconomic impacts primarily include project-related changes in employment, income, and sales. These project factors serve as the major economic stimuli that affect existing socioeconomic conditions including population as employment opportunities change the levels of in-migration and out-migration in the region. In addition to changes in employment, income, and sales, the socioeconomic impact analysis examines the effects of the alternatives on public infrastructure, services, tax revenue, and fiscal conditions. Impact criteria for socioeconomic resources are described in Table 3.18-7.

The socioeconomic effects analysis covers the three phases of the project: construction; operations and maintenance; and closure, reclamation, and monitoring. Socioeconomic data limitations preclude a separate quantitative analysis of the socioeconomic effects of each project component (mine site, transportation facilities, and pipeline). Potential socioeconomic effects of differences in the costs of project components across alternatives are described in qualitative and quantitative terms, as appropriate within limitations of available information.

Because of the dispersed nature of the population near the proposed mine site and natural gas pipeline, the socioeconomic impacts of the project would largely be realized regionally rather than locally. As a result, this section primarily presents potential impacts with analysis focused on the Y-K region. Communities along the Kuskokwim River would experience the same types of socioeconomic effects as those of the Y-K region as a whole under all the “build” alternatives, but Kuskokwim River communities would be differentially affected under the spill scenario (see Section 3.24, Spill Risk). Borough-level and community-level socioeconomic impacts are also discussed where applicable. Particular reference is given to the KPB, MSB, the Municipality of Anchorage, and the communities of Bethel and Unalaska.

Table 3.18-7: Impact Criteria for Socioeconomic Resources

Impact Component	Effects Summary		
Magnitude or Intensity	**Low**: Changes in socioeconomic indicators difficult to perceive or measure, generally within normal limits and trends or <5% increase or decrease. May alter but does not impair functions of affected sector(s).	**Medium**: Changes in socioeconomic indicators slightly outside normal limits and trends or between 5% to 10% increase or decrease.	**High**: Changes in socioeconomic indicators well outside normal limits and trends or greater than 10% increase or decrease.

Table 3.18-7: Impact Criteria for Socioeconomic Resources

Impact Component	Effects Summary		
Duration	**Temporary**: Changes in socioeconomic indicators last for the period of project construction (3 to 4 years).	**Long-term**: Changes in socioeconomic indicators extend through the life of the project (30 years) and return to pre-activity levels when actions causing impacts cease (up to 100 years).	**Permanent**: Changes in socioeconomic indicators persist after actions that caused the impacts cease.
Geographic Extent	**Local**: Affects communities within a subregion, such as the Upper Kuskokwim, Central Kuskokwim, etc.	**Regional**: Affects communities throughout the EIS Analysis Area.	**Extended**: Affects communities outside the EIS Analysis Area.
Context	**Common**: Affects populations that are not minority or low-income.	**Unique**: Affects minority or low-income populations.	

3.18.2.1 ALTERNATIVE 1 – NO ACTION

3.18.2.1.1 EMPLOYMENT, INCOME, AND SALES

If the project is not constructed, pre-development activities of recent years would halt. This action would result in a decrease in the number of jobs available in the state and in the Y-K region in particular. While the exploration camp is in care-taker status during the permitting process, it has been an important source of employment in recent years. The existing exploration camp accommodated up to 160 people (Donlin Gold 2012), and the Donlin Gold workforce in the Y-K region has included up to 240 employees during the exploration phase (Donlin Gold 2012). Nearly 90 percent of employees in recent years at the Donlin Gold camp have been Y-K region residents, and 9 of 10 supervisors have been from the Y-K region (Donlin Gold 2012). In 2007, approximately two dozen communities in the region each provided at least one or two workers for project pre-development activities. Some of these workers are employed by the Chiulista Camp Services, Inc., which is a subsidiary of Calista, and was created to facilitate opportunities to provide camp structures, equipment, and personnel in support of the Donlin Gold exploration program (McDowell Group 2012).

Under the No Action Alternative, the advance royalties that Donlin Gold pays to Calista would also terminate. These revenues contribute to the dividends and employment opportunities that Calista provides to its 12,000 shareholders. The No Action Alternative would not develop Calista and TKC lands specifically selected for mineral development potential and therefore would not provide financial benefit to these corporations and shareholders.

The number of alternative year-round, high-paying jobs is limited in the Y-K region, and the loss of jobs related to pre-development activities would likely not be easily offset. The loss of these positions as well as the loss of the prospect for future project-related employment opportunities in the Y-K region could result in some families leaving the region. The pursuit of

economic opportunities appears to be a predominant cause of out-migration in many remote rural Alaska communities (Martin et al. 2008). When rural Alaskans relocate from their communities, some of the jobs they support also go away, and this encourages more people to leave. When the population becomes very small, schools close and additional jobs are lost, which in turn motivates even more people to move away. The quality of life for people that remain gradually deteriorates because they have fewer family members and friends with whom to socialize locally. Eventually, some villages may simply disappear (Martin et al. 2008).

Under the No Action Alternative, communities in the Y-K region would continue to have subsistence-based economies. Government jobs would remain the primary source of wage income.

The impacts of a loss in employment and income following a halt in Donlin Gold's pre-development activities would be low in intensity in other areas of the state, with no observable changes in socioeconomic conditions. Many pre-development jobs are located in Anchorage since most of the state's professional and business services firms, including Donlin Gold's office, are based in that city. However, the decrease in jobs in percentage terms would be negligible due to the large and diversified economy of the municipality.

Summary for Alternative 1

Direct and indirect socioeconomic effects would be of low to medium intensity (observable reductions in employment opportunities as a result of termination of Donlin Gold activities), permanent in duration, and regional in extent (within the Y-K region). These effects would be important in context (affecting primarily minority and low-income communities). Impacts to the Y-K region would be minor and impacts to areas outside of the Y-K region would be negligible. Other socioeconomic indicators, such as public infrastructure and tax revenue, would not be affected by the No Action Alternative. Alternative 1 would have no effect on climate change as related to socioeconomic indicators in the EIS Analysis Area.

3.18.2.2 ALTERNATIVE 2 – DONLIN GOLD'S PROPOSED ACTION

3.18.2.2.1 EMPLOYMENT, INCOME, AND SALES

Construction

Direct Effects on Employment and Income

Construction of the mine site, transportation facilities, and pipeline would begin with mobilization of equipment, supplies, and personnel to the project site using various transportation modes. The construction phase of the three major project components would focus on infrastructure installation, including roads, pads, and airstrips. It would also include transport, installation, and commissioning of facility modules.

Workers would be employed to build the mine site infrastructure, transportation facilities, and natural gas pipeline. The construction phase of the proposed Donlin Gold Project is expected to take a total of four years and cost approximately $1.2 billion in labor. At peak construction, the proposed Donlin Gold Project would annually require up to 3,200 workers, including 2,500 for mine site and transportation facilities construction and 650 for natural gas pipeline construction.

Project construction jobs would be temporary and seasonal, with employment highest during the summer months.

Construction workers for the project components would follow a fly-in/fly-out commute work arrangement whereby they would spend a certain number of days working on-site, after which they would return home for a specified rest period. Donlin Gold would organize and pay for transportation between point of hire locations (such as Anchorage and Bethel) to the worksites. Worker accommodations and other services would be provided at or near the worksites.

Most of the direct, on-site construction jobs created by the project components would be in the heavy civil construction trade, including heavy equipment operators, site engineers, construction managers, construction laborers, electricians, pipefitters, and iron/steel workers; however, a wide range of occupations would be needed to construct the project components. For example, the Alaska Department of Labor and Workforce Development (ADOL) (2009) identified 113 occupations critical to the completion and operation of a gas pipeline; these job categories range from office and field engineering to safety, camps, environmental science, and catering.

While firms based in Anchorage would likely receive most of the Alaska-based construction contracts, workers employed by these firms would likely come from all regions of the state. The trades that would be required during project construction are available from the labor pool in boroughs and census areas throughout Alaska. The largest concentration of workers with relevant occupational skills is in highly populated Southcentral Alaska, but the percentage of total experienced workers covers all areas of the state, including many of Alaska's rural areas (Rae 2009).

Many of the workers needed to fill project construction jobs are currently available in the Y-K region. Donlin Gold has expressed a commitment to hiring qualified Y-K region residents during construction of the mine and other project components. Donlin Gold is also committed to hiring shareholders and descendants, under agreements with Calista and TKC. These agreements include provisions for local hire, training, and shareholder scholarships (Donlin Gold 2014e). In addition, some of the materials, supplies, and services required during project construction are expected to be provided by Calista and TKC subsidiaries. These firms give hiring preference to Calista and TKC shareholders and their descendants and spouses, and to shareholders of other Alaska Native Claims Settlement Act (ANCSA) corporations (Calista Corporation 2013b; TKC 2015). A large number of working-age adults residing in the Y-K region are currently qualified to fill project construction jobs. For example, more than 4,000 residents of the region currently work in a job identified as a core occupation involved in a gas pipeline development (ADOL 2013a). In addition, many residents are available for immediate employment, as there were about 4,000 unemployment insurance claimants in the Y-K region in 2012 (ADOL 2013a). Many of these unemployed individuals likely have the requisite skills for construction jobs or could be trained for construction jobs at the project worksites.

The direct jobs created by the project would be attractive to many Y-K region residents with the requisite skills. In general terms, developments like the proposed Donlin Gold Project provide economic benefits to individuals, families, and communities in the form of increased incomes. In particular, for those Y-K region residents who otherwise would have been unemployed or under-employed, earned income from the project would represent an improvement over reliance on income assistance or a job below one's skill level. Moreover, there is the potential to work on the project for a multi-year period, whereas most constructions jobs are shorter in

duration, and part of the project construction effort would be counter-seasonal to construction employment in the rest of the state—in particular, the gas pipeline construction workforce would peak during the two winter construction seasons.

However, employment during the construction phase would not appeal to all Y-K region residents because many construction jobs would still be seasonal and require extended periods of work in remote camps away from family and friends. The desire or obligation to participate in subsistence activities may also discourage some regional residents from seeking project employment over a longer continuous period. As reported in Section 3.21, Subsistence, recent interviews in the Central Kuskokwim villages on potential socio-cultural impacts to subsistence reveal that a large majority of respondents say that increased incomes would provide the means for more subsistence equipment and activity. On the other hand, seasonal construction activities, such as ROW clearing for the gas pipeline, may appeal to some village residents looking to supplement their incomes.

The magnitude of project construction labor requirements (annual and, more importantly, peak requirements), together with the limited number of workers in Alaska with the specialized skills required for mill construction, suggests that some construction jobs would be filled by workers from outside Alaska. One factor that would affect the number of nonresidents in the project construction labor force is the number and scale of other construction projects occurring simultaneously. Developments such as the utility and infrastructure projects, potential oil and gas construction, and other construction for normal residential and commercial development would compete for skilled labor during the project construction period, particularly during the summer construction season.

The conflicting and offsetting factors described above make it difficult to predict the residency of the project construction labor force. For purposes of this socioeconomic impact analysis, it is assumed that approximately 78 percent of the proposed Donlin Gold Project construction labor force would be Alaska residents, which is similar to the overall resident percentage in the state's construction industry (ADOL 2014). Based on this assumption, approximately $940 million in payroll would flow to Alaska construction industry workers over the 4-year construction phase - an average of $235 million each year. Alaska resident employment would total about 2,500 workers during the peak construction year.

It is estimated that approximately 50 to 60 percent of the workforce during the peak year of the project's construction phase, or about 1,600 to 1,900 workers, would be drawn from communities within the Y-K region. This is the same proportion of Y-K region workers as that estimated for the project's operations and maintenance phase and is based on the percentage of Northwest Alaska Native Association (NANA) shareholder employment at the Red Dog Mine. The Red Dog Mine is used as a comparison to the Donlin Gold Project because it is a contemporary mine, located in rural Alaska, on lands owned by an Alaska Native Corporation (NANA). The estimate of 1,600 to 1,900 workers represents around 45 percent of the total number of unemployment insurance claimants in the Y-K region. Spending by workers in communities near project components may be limited while living in work camps during on-shift time, but the workers drawn from the communities in the Y-K region would spend some portion of their earnings during their off-shift time in their home communities.

Direct Effects on Sales

Should the project proceed to development, procurement activities would begin soon after to ensure that the equipment, supplies and materials needed for construction of project components are available when needed.

Direct materials expenditures related to construction would have an immediate impact on Alaska's economy, but the geographic distribution of expenditures would depend on the location of firms supplying the materials. Some large material items, such as pipe for the gas pipeline, would be purchased out of state or globally and shipped via marine transport to Alaska ports. In addition, it is likely that firms based in Seattle would undertake the increase in tank storage capacity at the Port of Dutch Harbor. However, the project would purchase construction materials and supplies from Alaska providers where practicable. The total project expenditures on construction materials and equipment are estimated to be $5.2 billion. For purposes of this socioeconomic impact analysis, it is assumed that 33 percent of the total expenditures, or $1.7 billion, would be purchased from Alaska suppliers. The estimated percentage of project expenditures spent in Alaska is based on experience with similar large-scale construction projects in Alaska (TransCanada and ExxonMobil 2011; Northern Economics 2012). Businesses located in Anchorage likely would provide most of the Alaska-sourced materials and supplies.

As noted above, some of the materials, supplies, and services required during construction would likely be provided by Calista subsidiaries (e.g., Yulista Management Services, Inc., Chiulista Camp Services, Inc., Brice Inc., and Yukon Equipment Inc.); however, the subsidiaries are based in Anchorage, and the multiplier effect of these project expenditures would primarily occur in the municipality. Nevertheless, some local businesses in the Y-K region could experience an increase in activity during construction. For example, project construction workers may spend money in local hotels, restaurants, and shops. The effect of these expenditures would likely be concentrated in Bethel, as there are few retail and service outlets in the smaller communities. Construction of the project's transportation facilities also would largely be centered in Bethel.

An influx of capital and labor to small communities such as Bethel (small when viewed from a state-wide perspective) as a result of project construction could also have a negative economic effect in the form of inflationary pressure that would increase the prices of goods and services for residents in those communities. The higher prices would reduce the real income of those whose incomes do not rise as fast as the price level, such as lower and fixed income residents not employed by the project.

Indirect Effects

The direct changes in employment, income, and expenditures resulting from project construction would initiate subsequent rounds of income creation, spending, and re-spending. Third-party contractors, vendors, and manufacturers receiving payment for goods or services required by the project would, in turn, be able to pay others who support their businesses. In addition, persons directly and indirectly employed by the project would generate jobs and income as they purchase consumer goods and services to meet household needs. These indirect and induced impacts are termed "multiplier effects." Impact Analysis for Planning (IMPLAN), an input-output model, was used to estimate the multiplier effects of project construction on the statewide economy. These multiplier effects take into account both the sector-based interactions

that exist in the economy and the leakages in the form of purchases of goods and services from outside Alaska or individual boroughs and census areas.

It is estimated that during the four-year project construction period, an additional 7,300 jobs and $390 million in wages would be generated statewide through multiplier effects. Sales in Alaska would also increase by an additional $1.1 billion as a result of this multiplier effect. The amount of jobs, income, and sales in any given year would be a function of the construction expenditures in that year.

Operations and Maintenance

Direct Effects on Employment and Income

Hiring for jobs at the mine site would start in Year 1 of operations with 434 jobs; gradually increasing to approximately 1,000 jobs by the following year, and continuing at this level (1,000 employees) through Year 27 of operations. Operations and maintenance of the gas pipeline, meter stations, and the compressor station would require a minimum of four full-time workers. Approximately 150 of the jobs (out of the estimated 1,000 total) would be seasonal; the transportation facilities would only operate during the summer barge season from May to October. During the operations and maintenance phase, employees would follow a fly-in/fly-out work arrangement similar to that of the construction phase, with Donlin Gold organizing and paying for transportation between point of hire locations (such as Anchorage and Bethel) and the worksite. Worker accommodations and other services would be provided at or near the worksites.

Similar to the construction phase, the operations and maintenance phase would require a broad range of skill levels ranging from technical/professional staff to unskilled laborers. Also, the magnitude of project operations and maintenance labor requirements with respect to the size of the Y-K region's active workforce suggests that some jobs would be filled by workers from other areas of the state or outside Alaska. Out-of-state workers accounted for about 38 percent of total metal mining industry employment in Alaska in 2012 (ADOL 2014). The socioeconomic impact analysis assumed that a similar percent of the project's operations and maintenance labor force would consist of out-of-state workers. Based on that assumption, Alaska resident employment would average about 600 workers, with approximately $1.7 billion of the total payroll of $2.7 billion flowing to Alaska residents during the operations and maintenance phase, or $61 million each year that the project is fully operational.

Donlin Gold has expressed a commitment to hiring qualified Y-K region residents during operation of the mine and other project components and agreements with Calista and TKC commit Donlin Gold to shareholder and descendent hiring preference. The agreement with TKC included initial plans for regional training, including a potential training facility in Aniak (Dischner 2014). The experience of the Red Dog Mine operated by Teck Resources Ltd. (formerly Teck Cominco) in the Northwest Arctic Borough (NWAB) suggests that mineral development could increase jobs and personal income in the Y-K region communities, particularly if there are job training programs as well as local hire preferences. At the Red Dog Mine, from 50 to 60 percent of the year-round jobs are filled by shareholders or spouses of shareholders of NANA, the ANCSA regional corporation which owns the Red Dog property (Storey and Hamilton 2003; Haley 2012). Under an agreement negotiated in 1982, first preference in hiring is given to NANA shareholders, and the percentage of Red Dog workers

who are shareholders has increased since the opening of the mine as more local residents have been trained for mine-related jobs. The pattern of shareholder employment by salary level in 2007 shows 100 percent shareholder employment in entry-level job classes, and there is a strong shareholder cohort at every level up through journey level, although there appears to be a ceiling above that level. Every division (e.g., mill and mine operations, maintenance, warehouse) at Red Dog shows the same pattern of strong shareholder hire in entry-level positions and a ceiling below the top levels (Haley 2012). As previously stated, during the exploration phase, 9 of 10 supervisors at the Donlin Gold camp have been from the Y-K region (Donlin Gold 2012).

Low educational attainment is a notable barrier for NANA shareholders to entry-level employment at Red Dog, as well as job advancement. The minimum educational requirement for a job at the mine is a high school diploma or General Educational Development (GED) equivalent, and a college degree is often needed to move up the ranks (Haley 2012). Similarly, a high school diploma or GED is preferred, if not required, for potential jobs with Donlin Gold (Donlin Gold no date). As in the NWAB, a substantial portion of the adult population in the Y-K region has a comparatively low rate of educational attainment: 14 percent of adults over the age of 25 in the Bethel Census Area have not graduated from high school, while in the Kusilvak Census Area the figure is 18 percent.

Aside from the educational barriers to employment in the mining industry, industrial careers may not necessarily be what some Y-K region residents are seeking. Researchers analyzing the Red Dog Mine found that relatively few residents had the skills or credentials to enter mid-level jobs directly, and the path of upward mobility through long-term persistence at the mine did not appeal to those more interested in subsistence activities or to those whose career aspirations extended beyond a job in rural Alaska (Storey and Hamilton 2003). Shift-work patterns (such as two weeks on- two weeks off) may moderate this concern, since workers have regular periods of time in their home community. Other Y-K region residents, however, would likely be attracted by the proposed project's offer of well-paying jobs and stable year-round employment, a scarce opportunity nearly everywhere in rural Alaska (Fried and Windisch-Cole 2005).

An estimated 50 to 60 percent of the workforce during the operations and maintenance phase of the Donlin Gold Project, or about 500 to 600 workers, would be drawn from communities within the Y-K region. This percentage range is comparable to the proportion of NANA shareholder employment at the Red Dog Mine. The estimate of 500 to 600 workers represents around 12 percent of the total number of unemployment insurance claimants in the Y-K region.

However, some of the Y-K region employees of the project may not continue to reside in the region after they are hired. About half the NANA shareholders recruited to work at Red Dog decided to move their families and live outside the NWAB for lifestyle and/or economic reasons (Tetra Tech 2009). These shareholder employees rotate out at the end of their work shifts to homes primarily in Anchorage (Bradner 2011). Teck Resources provides transportation between the mine and these alternative places of residence, and steady employment has given workers the financial means to relocate (Tetra Tech 2009). Moreover, when commuting by air, the difference between 100 miles and 600 miles does not seem great (Storey and Hamilton 2003). It is difficult to predict the number of Y-K region residents employed by Donlin Gold during the operations and maintenance phase that would choose to reside outside the region during their employment with the project.

Direct Effects on Sales

Procurement activities would occur throughout the life of the mine, and these expenditures would have an impact on Alaska's economy. For purposes of this socioeconomic impact analysis, it is assumed that approximately 70 percent, or $9.8 billion, of the total project expenditures on materials and services during the operations and maintenance phase would occur in Alaska. The estimated percentage of project expenditures made in Alaska is based on an analysis of production spending by the state's mining industry conducted by McDowell Group (2012). As during the construction phase, businesses located in Anchorage would be the likely sources of most Alaska-sourced materials and services.

Similar to construction, some of the materials, supplies, and services required during operations and maintenance would likely be provided by Calista subsidiaries. However, the subsidiaries are based in Anchorage, and the multiplier effect of these expenditures would primarily occur in the municipality. Some of the materials, supplies, and services required during operations and maintenance may also be provided by businesses within the Y-K region, but these sales would primarily occur in Bethel and would be relatively minor.

Payments to ANCSA Corporations

As owners of the subsurface mineral rights, Calista has a financial interest in the proposed Donlin Gold Project. During the operations and maintenance phase, the Corporation would earn royalties. Although the full terms and conditions of the royalty agreement have not been made public, it has been reported that Donlin Gold has agreed to pay Calista an 8 percent royalty from mining profits (Anchorage Daily News 2010). Advance royalties estimated at $1 million per year have been paid in advance of mining operations, and these advances would be deducted from future royalties (Anchorage Daily News 2010; Calista Corporation 2014a).

Using figures presented in a pro forma cash flow analysis by AMEC (2012), it is estimated that Donlin Gold profits (calculated as gross revenues minus operating costs) over the life of the project would total approximately $18.7 billion. Based on an 8 percent royalty rate, Calista would receive an estimated $1.5 billion over the life of the project, or about $55.4 million annually. This amount would represent a substantial increase in Calista's revenues, although, as discussed below, project royalties received by Calista would be shared with other ANCSA regional corporations. By comparison, the pre-tax net income of all of Calista's major business operations in 2013 totaled around $35 million (Calista Corporation 2014a).

TKC, surface owner of most of the lands included in the proposed mine's footprint, would also receive direct payments as a result of the project. The financial terms of the surface rights agreement between TKC and Donlin Gold are confidential (Alaska Public Media 2014). However, it is likely that the corporation would collect an annual lease payment from Donlin Gold.

Royalties and other payments to Calista and TKC by Donlin Gold would likely have the same positive socioeconomic impact on the shareholders of these corporations as royalties from the Red Dog Mine have had on NANA shareholders. Red Dog Mine royalties have allowed NANA to create economic opportunities for shareholders through the development of NANA businesses, job creation, education opportunities, and dividend distributions (NANA Regional Corporation 2013). Shareholder disbursements from Calista and TKC royalties would be at the discretion of the respective boards of directors.

The project would have a positive impact not only on Calista, TKC, and the regional economy, but also on the statewide economy. As with all subsurface resource development projects on ANCSA regional corporation lands (excluding industrial minerals), 70 percent of project royalties received by Calista would be shared with other regional corporations under the Section 7(i) clause of ANCSA. A further provision of ANCSA calls for distribution of a portion of these shared royalties to village corporations and individual "at-large" shareholders holding only shares of a regional corporation and not a village corporation. Therefore, royalties from the project would flow throughout Alaska's economy.

Calista and Cook Inlet Region Inc. (CIRI), another ANCSA regional corporation, also own lands within the proposed ROW for the proposed gas pipeline. Arrangements would be necessary to traverse these lands with the pipeline, including possible annual lease payments to the two corporations. The amount of these payments is estimated to be $250,000.

Indirect Effects

The effects of operations and maintenance on employment would extend beyond the direct operating workforce. Indirect and induced changes in employment would result from the higher level of economic activity, higher state and local government spending, and spending associated with ANCSA corporation royalty payments. It is estimated that each year the project is operational, an additional 650 jobs and $40 million in wages would be generated statewide through multiplier effects. Sales in Alaska would increase by an additional $150 million per year.

Closure and Reclamation

Reclamation would be performed concurrently with mine operations whenever possible in areas no longer required for active mining. Direct employment and payroll of project jobs would be dramatically reduced. About six year-round workers would be hired to manage tailings storage facility consolidation and seepage water until the pit lake fills and active water treatment begins (estimated to be approximately 50 years after mining ends), and about six seasonal workers would be employed for active water treatment plant operation (in perpetuity). In addition, depending on the timeframe, 20 to 100 employees would be required for removal of the mine site facilities, above-ground portions of the pipeline, compressor station, main block valves, fiber optic repeater station, and above-ground fiber optic cable. A Closure Social Impact Assessment would be completed by Donlin Gold prior to the cessation of operations. This assessment would be an important component of the proposed project closure plans, and would outline measures with potentially affected communities to manage a tapered economic decline using skills developed by the workforce during mine operations and maintenance.

3.18.2.2.2 TAX REVENUE AND OTHER FISCAL EFFECTS

Construction and operations would generate revenues for local governments and the State of Alaska. The various sources of these government revenues are discussed below, including right-of-way acquisition costs, property taxes, mining license taxes, corporate income taxes, sales taxes, and miscellaneous taxes. At the time the mine ends production, and buildings, foundations, pipelines, and other infrastructure facilities are reclaimed, these revenues would be foregone.

Local and state government revenues would begin to increase during the construction phase. Donlin Gold and third-party contractors would be liable for ROW acquisition costs, sales taxes on construction materials, property taxes on land used to store construction materials, and oil and gas property taxes on the pipeline under construction. Other sources of revenues, such as mining license taxes and corporate income taxes, would become effective during the operations and maintenance phase and would continue until mining activity ceases during the closure, reclamation, and monitoring phase.

Right-of-Way Acquisition

ROW acquisition would be a substantial fiscal element of the project, especially the natural gas pipeline. It is estimated that ROW acquisition costs would total around $4.4 million, of which 60 percent ($2.75 million) would be paid to the state government, 35 percent ($1.5 million) would be paid to the federal government, and 5 percent ($250,000) would be paid to ANCSA corporations.

Property Taxes

Oil and Gas Property

The natural gas pipeline would originate at the west end of the Beluga Gas Field at a tie-in located in the MSB, and would be within the boundaries of the borough for approximately 115 miles, or about 37 percent of its total length. While state statute exempts oil and gas production and pipeline property from local municipal assessment, the state levies a 20-mill tax, i.e., 2 percent, against this property and reimburses each municipality which has oil and gas property located within its boundaries, an amount equal to taxes which it would have levied. The state retains the difference between the 20 mills and whatever the municipality taxes, and for portions of the oil and gas property not within a local government boundary, the state retains all of the tax revenue.

Gas pipeline property is generally subject to annual taxation based on the economic value of the property relative to the reserves feeding into the pipeline. However, since the project pipeline would be privately owned and without a tariff, it is uncertain how the pipeline would be valued. Given this uncertainty, this analysis used the total pipeline cost of $11.22 billion reported by SRK (2013b) to roughly estimate the amount of oil and gas property taxes that might be received by the state and MSB as a result of the project. Based on information from SRK (2013b), 3 years would be required for pipeline construction (including 1 year of pipe haul) and the mine would operate for another 27 years. In addition, it is assumed that the value of the pipeline would exhibit a straight line depreciation over those 27 years. Applying the state's 20-mill tax rate for oil and gas property to the $11.22 billion peak value of the pipeline when it first starts operating would generate about $22 million in oil and gas property tax, with the state retaining about $18 million. The balance of about $4 million would go to the MSB based on their property tax rate of 9.691 mills and the estimate that 37 percent of the pipeline would be located within the MSB boundaries. The value of the pipeline would depreciate by about $800,000 per year, and state oil and gas property tax revenues would decrease about $700,000 each year, with the MSB property tax revenues declining annually by about $150,000. The total oil and gas property taxes collected from the pipeline over the 3-year construction season and 27-year operating period is estimated to be about $337 million, with the state receiving about $276 million and MSB receiving about $60 million. The annual average for the 30-year period would

be about $2 million, with the state receiving about $1.63 million and MSB receiving about $356,000. This amount would represent a substantial increase in the amount of oil and gas property taxes collected by the MSB. By comparison, the Alaska Department of Commerce, Community and Economic Development (DCCED) (2015) reports that the MSB received $178,896 in oil and gas property taxes in 2014.

In addition, to the extent that pipe is stored at the Beluga Barge Landing during pipeline construction, the KPB would also collect oil and gas property taxes. For example, if the pipe is stored in a pipe yard near the barge landing in the summer to be ready for the winter construction season, the state could levy a tax against this property and reimburse the Borough an amount equal to taxes that it would have levied. In 2013, the KPB applied a rate of 4.5 mils to assessed property. There is insufficient information to estimate the value of the pipe that would be stored in the borough and the oil and gas property tax amounts generated.

Real Property

The MSB would also receive property taxes generated as a result of land leased for the pipeline ROW. The pipeline ROW would cross federal, state, and Alaska Native corporation lands. Donlin Gold would pay each entity to use its land, and in doing so would be liable for Borough property taxes due to possessory interest. Assuming the ROW lease is for 30 years, the property tax liability would be 85 percent of the full value of the land as determined by comparable property (Van Sant 2013). There is insufficient information to estimate the value of the land for the pipeline ROW and the property tax amounts generated.

Other municipalities that would collect real property taxes from the project include Unalaska. The project would construct an additional eight million gallons of fuel storage capacity at the Port of Dutch Harbor. The land on which this fuel storage would be located would be subject to annual taxation based on the actual value of the property. In 2013, Unalaska's property tax rate was 10.5 mils. There is insufficient information to estimate the value of the land for the additional fuel storage and the property tax amounts generated.

Mining License Tax and Corporate Income Tax

Alaska levies a mining license tax and corporate income tax on net income received in connection with mining properties and activities in the state. New mining operations are exempt from the mining license tax for a period of three and one-half years after production begins. Tax rates on mining net income are as follows: no tax if net income is $40,000 or less; $1,200 plus 3 percent over $40,000; $1,500 plus 5 percent over $50,000; and $4,000 plus 7 percent over $100,000. Corporate income tax rates are graduated from 1 percent to 9.4 percent in increments of $10,000 of taxable income; the 9.4 percent maximum rate applies to taxable income of $90,000 and over.

Donlin Gold would be eligible to receive credits offered by the State of Alaska that would reduce its mining license tax or corporate income tax liability. The 1995 Alaska Exploration Incentives Act created the Exploration Incentive Credit Program, which allows a deduction of up to $20 million of qualified costs from taxes over a 15-year period for new mines. The exploration credits are site specific and can continue to be earned up to receipt of the final operating permit. Application of the credit would be limited to the lesser of 50 percent of the company's mining license tax liability or 50 percent of its corporate income tax liability.

In addition, Donlin Gold is allowed a credit for contributions to Alaska universities and accredited nonprofit Alaska two-year or four-year colleges for facilities, direct instruction, research, and educational support purposes. The tax credit can also be taken for donations to a school district or state-operated vocational technical education and training school for vocational education courses, programs, and facilities. Donations for an annual intercollegiate sport tournament, Alaska Native cultural or heritage programs for public school staff and students, and a facility in the state that qualifies as a coastal ecosystem learning center under the Coastal American Partnership also qualify. The credit is 50 percent of the first $100,000, 100 percent of the contribution over $100,000 up to $300,000, and 50 percent of the remaining amount over $300,000. The total allowable credit may not exceed $5 million.

The collection of mining license tax and corporate income tax on project net income would have a beneficial effect on state government revenues. AMEC (2012) estimated that the project would generate a total of $701.4 million in state corporate income tax and $536.9 million in state mining tax over the life of the mine. State income tax would not be paid until approximately 7 years after Year 1 of operations, while mining license tax would not be paid until about 4 years following Year 1 of operations. The average annual income tax and mining license tax generated over the 27-year life of the project are estimated to be $26.0 million and $19.9 million, respectively. The $26.0 million state income tax estimate represents about 25 percent of Alaska's non-petroleum corporate income tax total in FY2014, and around 6 percent of all corporate income taxes received by the state during that year. The $19.9 million estimated mining tax represents about 84 percent of the total mining license taxes received by the state in FY2014 and around 60 percent of the total anticipated mining license taxes collected in FY2015 (Alaska Department of Revenue 2014).

Project income would also be subject to federal income tax. It is estimated that federal revenues would total $1.5 billion over the life of the project (AMEC 2012).

Miscellaneous Taxes and Fees

The list below describes additional sources of local and state government revenues potentially created by the project. There is insufficient information to estimate the amount of revenues that each source would generate.

- Additional state government revenues from non-mining corporate income taxes may be generated due to the higher level of economic activity associated with construction and operation of the project.
- Natural gas purchased for the project from Cook Inlet producers may be subject to a sales tax. The location of these natural gas sales is uncertain, but it is possible that they would occur within the jurisdiction of the KPB. Currently, the Borough levies a 3 percent sales tax on all retail sales.
- Diesel fuel purchased for the project may also be subject to a sales tax. As with natural gas, the location of these fuel sales is uncertain, but it possible that they would occur in Unalaska or Bethel where fuel for the project would be stored. Currently, Unalaska levies a 3 percent sales tax on all retail and wholesale sales, while Bethel levies a 6 percent sales tax.

- Spending in Y-K region communities by transportation and logistics workers supporting activities related to construction and operations and maintenance would generate sales tax and bed tax revenues for those communities. However, these fiscal effects would be relatively minor because most of the project workforce would reside in isolated, self-contained camps. To the extent that workers spend money in local hotels, restaurants, and shops, the fiscal effect of these expenditures would likely be concentrated in Bethel, the regional hub.

Economic Impacts to Local and Regional Communities

The Donlin Gold Project would occur over a period of approximately 30 years, representing nearly a full generation of workers and residents. Initial construction over a 3 to 4 year period would require the largest number of workers for temporary and seasonal jobs. During the peak construction year, Alaska resident employment is estimated at about 2,500 workers. Approximately 50 to 60 percent of the peak year workforce would be drawn from communities within the Y-K region, and there are strong training programs to support local hire. Employment during operations would be less but still substantial, estimated to impact 4 to 4.5 percent of households in the region. A portion of those employees at the Donlin Gold Mine may relocate their household outside of the region. Based on experience at Red Dog Mine, about 50 percent of employees would out-migrate to Anchorage or beyond, including the regional hub of Bethel. In-migration to the region is not anticipated during any of the project phases as Donlin Gold would provide transportation to the mine site and on-site housing for mine employees, control hire in conjunction with the landowner, and maximize local hire. Absent this industrial enclave model, in-migration would be the greatest source of potential impacts to housing and services and more similar to the boom and bust experience with resource development projects elsewhere. Employment levels during closure and reclamation would be low.

While there would be a peak with construction and reduced but steady level of economic activity in the region during project operations, the proposed project would generate a single round of development, not a cycle of repeated starts and stops. Hiring and other business decisions would be made in conjunction with the Alaska Native Corporation landowners, controlling outside influences that typically contribute to boom and bust characteristics. A Closure Social Impact Assessment would be conducted as the project approaches closure, to assist with planning for the decline. This assessment would be an important component of the proposed project plans. The plan would outline measures to work with potentially affected communities to avoid a potential economic bust, and manage a tapered economic decline using skills developed by the workforce during the mine operations and maintenance phase to apply to future economic activities.

3.18.2.2.3 LOCAL PUBLIC INFRASTRUCTURE AND SERVICES

This section describes potential effects of the project on local public infrastructure and services. The discussion focuses on possible changes in the demand for, and supply of, local public infrastructure and services during project construction, operations and maintenance. At the time the mine ends production, and buildings, foundations, pipelines, and other infrastructure facilities are reclaimed, impacts to local public infrastructure and services would cease.

Effects on Demand for Public Infrastructure and Services

The direct effects of all phases of the project on public utilities in communities in the socioeconomics study area would not be readily noticeable. The temporary and long-term camps housing workers would be self-contained, and operated and maintained by Donlin Gold throughout project construction, operations and maintenance, and closure, reclamation, and monitoring. In addition to housing facilities, the camps would be equipped with appropriate emergency medical facilities, electrical power generation, fuel storage, and facilities for sewage treatment and solid waste disposal and management. Potable water for the camps would be trucked in or sourced from on-site wells.

The indirect impact of the project on the demand for local public goods and services is difficult to predict given the conflicting potential effects of project construction and operations and maintenance on the population sizes of Y-K region communities. On the one hand, the jobs that the project would create could ease population loss by stemming out-migration. Most of the communities in the Y-K region are small villages in which even marginal increases in employment rates can be important in maintaining economic viability. Economic stability could encourage existing residents in the region to stay, and possibly attract new residents. Stemming outward migration would help ensure that an adequate level of public facilities, such as utilities, schools, and health clinics, is maintained in the communities. On the other hand, as discussed above, employment at the mine may facilitate community residents relocating to areas outside the Y-K region such as Anchorage. Depopulation of Y-K region communities would have a negative effect on the range and level of services and facilities in the communities, which, in turn, could prompt further out-migration.

Also difficult to forecast are changes in the demand for public goods and services caused by project effects on the well-being of individuals, families, and communities in the Y-K region. Once in the hands of individuals, project-related income can be spent in ways that are beneficial or detrimental. In general, benefits arise where increased income leads to improved lifestyles or increased opportunities for individuals and their families. Income that is spent on drugs, alcohol, or gambling is considered detrimental. The potential for the project to exacerbate existing social problems in communities may be increased by intense work schedules and rotating shifts at project worksites that involve long periods away from home. In addition to adversely affecting the wellness of individuals, families, and communities, an escalation of social problems would increase demand for local and regional health care, social services, and protective services. Current levels of funding for local and regional public service providers may be inadequate to cover this increased demand for services.

Effects on Supply of Public Goods and Services

Energy Effects

The operation of the project would have a potential indirect effect on local public utility costs in some Y-K region communities. Although the project would not be a natural gas distributor, other entities could use any excess capacity that may become available in the natural gas pipeline to help Y-K region communities meet their energy needs (Donlin Gold 2011). As stated in the natural gas pipeline plan of development (SRK 2013b), providing a means for a reliable natural gas fuel source to the project may create opportunities for further development of natural gas use beyond that of the project. For example, the construction of off-take points from

the natural gas pipeline would make it possible to provide natural gas to communities which are not currently served by natural gas utilities. This gas could be used for commercial and residential heating needs as well as for electricity generation capacity.

The biggest challenge in supplying natural gas to communities of the Y-K region lies in the lack of economies of scale. The fixed costs associated with constructing a regional natural gas pipeline distribution system are large, and the customer base is small. It is unlikely that development of a distribution system would be economically viable unless it was subsidized by an outside entity. For example, Plourde and Ryan (1995) describe the government assistance programs that have been necessary to encourage natural gas utilities to extend their pipeline distribution systems to sparsely populated areas in Alberta, Quebec, British Columbia, and Saskatchewan. An example of government assistance that led to the provision of natural gas in a rural Alaska village can be found in Nuiqsut, a community in the North Slope Borough with a population of about 400.

It is difficult to determine the likelihood that the project would result in the provision of an alternative energy source for communities in the Y-K region. In addition to the costs of constructing a natural gas distribution system and converting homes and businesses and diesel-fired electrical generation systems to natural gas, there are regulatory obstacles that would need to be overcome (Lasley 2010).

Incorporation of a New Borough

It is possible that the project would lead to the incorporation of a new borough that would include some portion of the Bethel and Kusilvak Census Areas. In 2004, a regional economic summit held in Bethel established a steering committee to address the prospects of incorporating a borough encompassing the Association of Village Council Presidents – Calista region. Interest in borough formation was prompted by the prospective development of the Donlin Creek mineral deposit (Alaska Local Boundary Commission 2007), together with the potential decline in state and federal funding for critical regional services such as education, health care, and public safety (Cotten 2007).

In 2006, the State of Alaska contracted with Lamar Cotten to prepare an economic feasibility study for the formation of a borough in the middle Kuskokwim region (Alaska Local Boundary Commission 2007). This region follows the boundaries of the Kuspuk Regional Educational Attendance Area and conforms to the model borough boundaries for the Kuspuk region, as described in Alaska Local Boundary Commission (1997). It includes 10 villages along the Kuskokwim River: Aniak, Chuathbaluk, Crooked Creek, Georgetown, Lower Kalskag, Napaimute, Red Devil, Sleetmute, Stony River, and Upper Kalskag. After reviewing the projected costs and revenues as well as operational issues of a middle Kuskokwim borough, the study concluded that the economy of the region includes the human and financial resources capable of providing municipal services if the Donlin Creek mine is developed. According to the study, a borough would not be feasible or practical without the mine, as the region currently lacks a strong or reliable tax base (Cotten 2007). A key requirement for borough formation is that "the economy of the area includes the human and financial resources capable of providing municipal services" (AS 29.05.031(a)(3)).

The incorporation of a new borough in the region around the Donlin Gold Mine would likely have a positive effect on public infrastructure and services in communities included in the borough. For example, payments by the owner of the Red Dog Mine to the NWAB have

resulted in an improvement in the general well-being of borough residents through better funding of services, including community and economic development projects (Tetra Tech 2009; NANA Regional Corporation 2013). In addition, these payments, together with those that the mine owner provides directly to the NWAB School District, are an important source of funding for education in the Borough (Tetra Tech 2009).

Notwithstanding the conclusion of the study by Cotten (2007) that borough formation would be feasible with development of the Donlin Gold Mine, it is difficult to determine the likelihood that a new borough would actually be incorporated. Proposals for the formation of new boroughs (or the expansion of boundaries of existing boroughs) are sensitive issues in Alaska. Lawsuits or long-standing boundary disputes tend to erupt each time a borough incorporation or annexation proposal is advanced (Alaska Local Boundary Commission 1997). The state can compel the extension of borough government in regions capable of supporting boroughs if citizens choose not to organize voluntarily. Although current state law provides that borough incorporation proposals may only be initiated by voters, the Alaska Legislature has overridden those laws in the past to compel certain areas to organize (Alaska Local Boundary Commission 2000). Uncertainty about the state's long-term fiscal condition and disagreement between urban and rural areas regarding payment for public services have heightened tensions surrounding state efforts to establish boroughs where they are economically feasible (Alaska Local Boundary Commission 2001; The Associated Press 2003; Cotten 2007).

3.18.2.2.4 CLIMATE CHANGE

The Donlin Gold Project would contribute to climate change through the production of greenhouse gases as discussed in Section 3.8, Air Quality. The amount of greenhouse gas emissions from implementation of Alternative 2 is not likely to create socioeconomic effects from climate change. However, if current climate change trends persist, socioeconomic impacts (i.e., impacts to employment and incomes, tax revenues, and local public infrastructure) from the project would be similar to those discussed above, with potentially increased costs for maintaining infrastructure and public facilities due to permafrost susceptibility to thaw. (See Section 3.26.3.3, Permafrost in Section 3.26, Climate Change for more information).

3.18.2.2.5 SUMMARY FOR ALTERNATIVE 2

Under Alternative 2, socioeconomic impacts would be medium to high intensity due to increased levels of employment in excess of historic limits and trends. Given the high unemployment in the Y-K region, beneficial employment effects would be particularly high within that region, with the magnitude of impact greatest in the smaller communities near the mine-site. The magnitude of the effects of project payments to state and local governments and ANCSA corporations would be medium to high and beneficial. The magnitude of impacts to public infrastructure would be low, as camps housing workers would be self-contained and operated and maintained by Donlin Gold throughout project construction; operations and maintenance; and closure, reclamation, and monitoring. Impacts during the construction phase would be temporary in duration, lasting the 4 years in which project construction occurs. Impacts would be long-term during the operations and maintenance phase, extending for the expected 27-year life of the project. Impacts during the closure, reclamation, and monitoring phase would be long-term to permanent, as seasonal workers would be employed for the duration of active water treatment. The geographic extent of socioeconomic impacts would vary

but primarily occur regionally (affecting communities throughout the EIS Analysis Area). Context for direct impacts would be important given Donlin Gold's commitment to hire qualified Y-K region residents, thus affecting primarily minority and low-income populations. The overall direct and indirect socioeconomic impacts of Alternative 2 in the EIS Analysis Area would be considered moderate to major (beneficial), with the greatest socioeconomic effects realized in the Y-K region, primarily due to the long-term impacts of increased employment, income, and sales. Table 3.18-8 summarizes Alternative 2 Impact Levels by Project Phase.

These effects determinations take into account impact reducing design features (Table 5.2-1 in Chapter 5, Impact Avoidance, Minimization, and Monitoring) proposed by Donlin Gold and also the Standard Permit Conditions and Best Management Practices (BMPs) (Chapter 5, Impact Avoidance, Minimization, and Monitoring) that would be implemented. Several examples of these are presented below.

Design features most important for reducing socioeconomics impacts include:

- Agreements with Alaska Native landowners create contractual commitments to shareholder hire and revenue flows for Alaska Native shareholders (minority and low income).
- Consultation with the public and tourism and recreation businesses to minimize impacts to current uses and operations.
- The development and implementation of a Construction Communications Plan to inform the public and commercial operators of construction activities.
- Assistance to develop project related training programs for local residents to enhance local hire potential during construction, and operations and maintenance phases.
- Shareholder preference in hiring maximizes economic benefit to local communities (minority and low income); along with enclave work place, this minimizes risk of influx of non-local workers into nearby communities during construction, and operations and maintenance phases.
- Design for closure would occur even before construction for reclamation and closure planning at the mine site. This incorporates methods for safe and efficient closure of the mine as an integral part of the planned mine design and operations. Implementing design for closure can have the effect of minimizing disturbance and the re-handling of materials.
- Implementation of barge guidelines by Donlin Gold for operating at certain river flow rates, and conduct ongoing surveys of the Kuskokwim River navigation channel to identify locations that should be avoided to minimize effects on bed scour and the potential for barge groundings. As part of the proposed operation, equipment will be available to free or unload/lighter barges in the event of groundings. The equipment will be available as part of ongoing operations, it will not all be dedicated standby equipment.
- Avoidance of areas with tourist-related facilities if reasonably possible. Donlin Gold would engage with lodges and guides in advance of construction to coordinate activities.

- Pipeline construction schedule adjustment to minimize impacts to peak periods of recreation and tourism activities in the area, e.g., recreation uses of INHT for annual events.
- The project design includes the development and implementation of a Construction Communications Plan to inform the public and commercial operators of construction activities.

Standard Permit Conditions and BMPs most important for reducing socioeconomics impacts include:

- Developing spill prevention and response type plans as required by federal and state requirements. The plan(s) will prescribe effective processes and procedures to prevent the spill of fuel or hazardous substances and include procedures to respond to accidental releases
- Monitoring of water withdrawals to ensure permitted limits are not exceeded

Table 3.18-8: Alternative 2 Impact Levels by Project Phase

Project Phase	Impact Level				
	Magnitude or Intensity	**Duration**	**Geographic Extent**	**Context**	**Summary Impact Rating[1]**
Employment, Income, Sales					
Construction Phase	*Alaska:* Medium *Y-K region:* High	*Alaska:* Temporary *Y-K region:* Temporary	*Alaska:* Extended *Y-K region:* Regional	*Alaska:* Common *Y-K region:* Unique	
Operations and Maintenance Phase	*Alaska:* Medium *Y-K region:* High	*Alaska:* Long-term *Y-K region:* Long-term	*Alaska:* Extended *Y-K region:* Regional	*Alaska:* Common *Y-K region:* Unique	
Closure and Reclamation Phase	*Alaska:* Low *Y-K region:* Medium	*Alaska:* Long-term to Permanent *Y-K region:* Long-term to Permanent	*Alaska:* Extended *Y-K region:* Regional	*Alaska:* Common *Y-K region:* Unique	
Lease Fees, ROW Acquisition, Tax Revenue, Royalties					
Construction Phase	Medium	Temporary	Extended and Regional	Common	
Operations and Maintenance Phase	Medium to High	Long-term	Extended and Regional	Common	
Closure and Reclamation Phase	Low	Temporary	Extended and Regional	Common	
Local Public Infrastructure and Services					
Construction Phase	Low	Temporary	Regional	Unique	
Operations and Maintenance Phase	Low	Long-term	Regional	Unique	

Table 3.18-8: Alternative 2 Impact Levels by Project Phase

Project Phase	Impact Level				
	Magnitude or Intensity	**Duration**	**Geographic Extent**	**Context**	**Summary Impact Rating[1]**
Closure and Reclamation Phase	Low	Temporary	Regional	Unique	
Alternative 2 Summary Impact Conclusion	*Alaska:* Medium *Y-K region:* High	*Alaska:* Long-term *Y-K region:* Long-term	*Alaska:* Extended *Y-K region:* Regional	*Alaska:* Common *Y-K region:* Unique	*Alaska:* Moderate (beneficial) *Y-K region:* Major (beneficial)

Notes:

1 The summary impact rating accounts for impact reducing design features proposed by Donlin Gold and Standard Permit Conditions and BMPs that would be required. It does not account for additional mitigation measures the Corps is considering.

3.18.2.2.6 ADDITIONAL MITIGATION AND MONITORING FOR ALTERNATIVE 2

The Corps is considering additional mitigation (Table 5.1-1 in Chapter 5, Impact Avoidance, Minimization, and Monitoring) and monitoring measures (Table 5.7-1 in Chapter 5, Impact Avoidance, Minimization, and Monitoring) to reduce the effects presented above. Additional mitigation and monitoring measures include:

- Socioeconomic monitoring: Monitor socioeconomic conditions (population, demographics, employment, income, and education) in Y-K villages using existing/annually updated state and federal statistics.
- Closure of borrow sites along the mine access road and pipeline, particularly those near communities and major river crossings, would be intended to preclude use of these resources by future users. However, depending on permitter/stakeholder/ landowner interest, consideration should be given to leaving accessible borrow sites open beyond project closure. This may mitigate area wide geologic impacts, through use of existing sites, rather than opening of new sites for borrow materials. A local entity would need to take responsibility for management and ultimate closure of the borrow sites. Per regulation, ADNR may not be able to close use of a borrow site near a community.

If these mitigation measures were adopted and required, socioeconomic impacts would be slightly reduced. Socioeconomic monitoring could identify potential adverse effects in time to possibly remediate them, and accessible borrow sites may ease supply of borrow materials in the future. However, the impact ratings for socioeconomics would remain the same for all project components.

3.18.2.3 ALTERNATIVE 3 – REDUCED DIESEL BARGING: LNG-POWERED HAUL TRUCKS

3.18.2.3.1 EMPLOYMENT, INCOME, AND SALES

With use of LNG-powered haul trucks, the employment and income generated during construction of the mine site, transportation facilities, and pipeline under Alternative 3A would be similar to those under Alternative 2. Expenditures during mine site construction would also be similar to those under Alternative 2, as construction of the LNG production facility would be offset by reductions in onsite diesel storage. Expenditures during construction of the transportation facilities would decrease by tens of millions of dollars relative to those under Alternative 2 due to decreased fuel barge fleet and infrastructure requirements. Expenditures during pipeline construction would be similar to those under Alternative 2.

The employment and income generated during operations and maintenance of the mine site, transportation facilities, and pipeline under Alternative 3A would be similar to those under Alternative 2 except the number of jobs created in transportation would be lower due to reduced fuel shipping, barging, and trucking. Expenditures during operations and maintenance would be also be similar to those under Alternative 2; but truck fuel costs would decrease by tens of millions of dollars because LNG, instead of diesel, would be used to power the large haul trucks and there would be less money spent on fuel transportation to the mine site.

Employment, income, and sales during closure and reclamation would be similar to those under Alternative 2.

3.18.2.3.2 TAX REVENUE AND OTHER FISCAL EFFECTS

Fiscal effects under Alternative 3A would be similar to those under Alternative 2 with one exception. Under Alternative 3A, an increase in tank storage capacity at the Port of Dutch Harbor would probably not be required. Consequently, the revenues to the City of Unalaska from its property tax would not increase as under Alternative 2.

3.18.2.3.3 LOCAL PUBLIC INFRASTRUCTURE AND SERVICES

Impacts on local public infrastructure and services under Alternative 3A would be similar to those under Alternative 2.

3.18.2.3.4 SUMMARY FOR ALTERNATIVE 3A

The summary impact conclusion for Alternative 3A is the same as for Alternative 2.

The direct and indirect socioeconomic impacts of the construction, operation, and closure phases of Alternative 3A would be similar to those under Alternative 2, with some exceptions. The decrease in jobs and fuel cost savings that would result from using LNG instead of diesel would be small relative to total project employment and expenditures. Fiscal effects under Alternative 3A would be similar to those under Alternative 2, except the effects on the City of Unalaska would be minor due because an increase in tank storage capacity at the Port of Dutch Harbor would probably not be required. Impacts associated with climate change would be the same as discussed for Alternative 2. The effects determinations take into account applicable

impact reducing design features, as discussed in Alternative 2. No additional mitigation measures have been identified to reduce socioeconomics impacts.

3.18.2.4 ALTERNATIVE 3B – REDUCED DIESEL BARGING: DIESEL PIPELINE

3.18.2.4.1 EMPLOYMENT, INCOME, AND SALES

The employment and income generated during construction of the mine site and transportation facilities under Alternative 3B would be similar to those under Alternative 2. Employment and payroll during construction of a diesel pipeline would be higher due to construction and installation of a larger diameter pipeline for a greater distance, additional valves and infrastructure, and increased fuel transportation and handling in Cook Inlet. Expenditures during mine site construction would decrease by tens of millions of dollars relative to those under Alternative 2 as a result of a reduced diesel storage tank requirement. Expenditures during construction of the transportation facilities would also be tens of millions of dollars lower due to reduced fuel barging. Expenditures during pipeline construction would increase by hundreds of millions of dollars due to a larger diameter pipeline, additional valves and infrastructure, and increased fuel transportation and handling in Cook Inlet.

The employment and income generated during operations and maintenance of the mine site under Alternative 3B would be similar to those under Alternative 2. The employment and income generated during operations and maintenance of the transportation facilities would be lower due to reduced fuel shipping, barging, and trucking. The employment and income generated during pipeline operations and maintenance would be higher due to increased monitoring requirements and fuel shipping and handling in Cook Inlet. Expenditures for mine site operations and maintenance would experience an increase in the range of hundreds of millions of dollars because milling and mining costs would rise due to the higher cost of power generated with diesel. In addition, expenditures for pipeline operations and maintenance would increase by tens of millions of dollars because of increased monitoring requirements and fuel shipping and handling in Cook Inlet. However, logistical charges during operation of the transportation facilities would decrease by tens of millions of dollars due to the absence of fuel barging.

Employment, income, and sales during closure and reclamation would be greater than those under Alternative 2 due to reclamation of Cook Inlet and pipeline above-ground facilities.

3.18.2.4.2 TAX REVENUE AND OTHER FISCAL EFFECTS

Fiscal effects under Alternative 3B would be similar to those under Alternative 2 with one exception. The KPB would receive additional revenues as a result of property taxes on a new North Forelands dock facility or expansion of the existing Tyonek North Foreland Barge Facility, the fuel storage tanks at the Cook Inlet end of the diesel pipeline, and the portion of the diesel pipeline and pipeline facilities within the borough's boundaries.

3.18.2.4.3 LOCAL PUBLIC INFRASTRUCTURE AND SERVICES

Impacts on local public infrastructure and services under Alternative 3B would be similar to those under Alternative 2 with one exception. Because this alternative would replace the natural

gas pipeline under Alternative 2 with a diesel fuel pipeline, the project would not have the potential indirect beneficial effect of helping some Y-K region communities meet their energy needs by supplying natural gas for local utilities. However, communities would experience a decrease in energy costs if the diesel fuel price transported by pipeline was less than the current price of diesel fuel brought in by barge and communities were able to access the piped diesel fuel.

3.18.2.4.4 SUMMARY FOR ALTERNATIVE 3B

The summary impact conclusion for Alternative 3B is the same as for Alternative 2.

The direct and indirect socioeconomic impacts of Alternative 3B would be similar to those under Alternative 2, with some exceptions. The larger workforce and increased expenditures required to construct a diesel pipeline and power mining operations with diesel would more than offset any decreases in employment and expenditures due to reduced diesel shipping, barging, trucking, and storage requirements. Consequently, Alternative 3B would enhance the beneficial direct and indirect employment, income, and sales impacts of the project. Fiscal effects under Alternative 3B would be similar to those under Alternative 2 except the construction of a new or expanded dock facility and fuel storage in Cook Inlet would enhance the beneficial effects on the KPB. Impacts associated with climate change would be the same as discussed for Alternative 2. The effects determinations take into account applicable impact reducing design features, as discussed in Alternative 2. No additional mitigation measures have been identified to reduce socioeconomics impacts.

3.18.2.5 ALTERNATIVE 4 – BIRCH TREE CROSSING (BTC) PORT

3.18.2.5.1 EMPLOYMENT, INCOME, AND SALES

Employment, income, and expenditures during construction of the mine site and pipeline under Alternative 4 would be similar to those under Alternative 2. Employment and payroll during construction of the transportation facilities would be higher due to longer road construction. Expenditures during construction of the transportation facilities would increase by tens of millions of dollars due to longer road construction.

Employment, income, and expenditures during operation of the mine site and pipeline under Alternative 4 would be similar to those under Alternative 2. Employment and payroll during operation of the transportation facilities would be similar to those under Alternative 2, as the need for additional truck drivers would offset the reduced barge crews. Expenditures during operation of the transportation facilities would be higher because road haul is more expensive than barging, but the increase would total less than ten million dollars.

Employment, income, and expenditures during closure and reclamation would be more than those under Alternative 2 because the portion of the road to access Birch Tree Crossing would most likely be reclaimed.

3.18.2.5.2 TAX REVENUE AND OTHER FISCAL EFFECTS

Fiscal effects under Alternative 4 would be similar to those under Alternative 2.

3.18.2.5.3 LOCAL PUBLIC INFRASTRUCTURE AND SERVICES

Impacts on local public infrastructure and services under Alternative 4 would be similar to those under Alternative 2.

3.18.2.5.4 SUMMARY FOR ALTERNATIVE 4

The summary impact conclusion for Alternative 4 is the same as for Alternative 2.

The direct and indirect socioeconomic impacts of Alternative 4 would be similar to those under Alternative 2, with some exceptions. The larger workforce required to construct a longer road and truck freight and diesel would more than offset any decreases in employment due to reduced barge crews. Construction of a longer road would increase expenditures. Consequently, Alternative 4 would enhance the beneficial direct and indirect employment, income, and sales impacts during project construction. Impacts associated with climate change would be the same as discussed for Alternative 2. The effects determinations take into account applicable impact reducing design features, as discussed in Alternative 2. No additional mitigation measures have been identified to reduce socioeconomics impacts.

3.18.2.6 ALTERNATIVE 5A – DRY STACK TAILINGS

The overall direct and indirect socioeconomic impacts of Alternative 5A would be similar to those under Alternative 2 and the summary impact conclusion is the same. Impacts associated with climate change would be the same as discussed for Alternative 2. The effects determinations take into account applicable impact reducing design features, as discussed in Alternative 2. No additional mitigation measures have been identified to reduce socioeconomics impacts.

3.18.2.7 ALTERNATIVE 6A – MODIFIED NATURAL GAS PIPELINE ALIGNMENT: DALZELL GORGE ROUTE

3.18.2.7.1 EMPLOYMENT, INCOME, AND SALES

Employment, income, and expenditures during construction of the mine site and transportation facilities under Alternative 6A would be similar to those under Alternative 2. Employment and payroll during construction of the pipeline would be higher, as additional horizontal directional drilling would be required (Donlin Gold 2015h). Expenditures during pipeline construction would increase by tens of millions of dollars due to additional horizontal directional drilling (Donlin Gold 2015h).

Employment, income, and expenditures during operations and maintenance and closure and reclamation of the mine site, transportation facilities, and pipeline under Alternative 6A would be similar to those under Alternative 2.

3.18.2.7.2 TAX REVENUE AND OTHER FISCAL EFFECTS

Fiscal effects under Alternative 6A would be similar to those under Alternative 2.

3.18.2.7.3 LOCAL PUBLIC INFRASTRUCTURE AND SERVICES

Impacts on local public infrastructure and services under Alternative 6A would be similar to those under Alternative 2.

3.18.2.7.4 SUMMARY FOR ALTERNATIVE 6A

The summary impact conclusion for Alternative 6A is the same as for Alternative 2.

The direct and indirect socioeconomic impacts of Alternative 6A would be similar to those under Alternative 2, with some exceptions. As a result of the larger workforce and higher expenditures required to construct a pipeline with additional horizontal directional drilling, Alternative 6A would enhance the beneficial direct and indirect employment, income, and sales impacts during project construction. Impacts associated with climate change would be the same as discussed for Alternative 2. The effects determinations take into account applicable impact reducing design features, as discussed in Alternative 2. No additional mitigation measures have been identified to reduce socioeconomics impacts.

3.18.2.8 IMPACT COMPARISON – ALL ALTERNATIVES

A comparison of the impacts on socioeconomics by alternative is presented in Table 3.18-9.

This page intentionally left blank.

Table 3.18-9: Comparison of Impacts by Alternative

Impact-causing Project Component	Alt. 1 – No Action	Alt. 2 – Proposed Action	Alt. 3A – LNG-Powered Haul Trucks	Alt. 3B – Diesel Pipeline	Alt. 4 – BTC Port	Alt. 5A – Dry Stack Tailings	Alt. 6A – Dalzell Gorge Route
Employment, Income, Sales	· Loss of employment and income related to pre-development activities · Advance royalties to Calista would terminate, which would negatively impact dividends and employment opportunities that Calista provides to its 12,000 shareholders	<u>Construction</u> Total Direct Jobs: 3,200 · Direct jobs, Alaska: 2,500 · Direct jobs, Y-K region: 1,600 to 1,900 · Indirect Jobs, Alaska: 7,300 Total Direct Payroll: $1.2 billion over project life · Direct Payroll, Alaska: $940 million · Indirect Payroll, Alaska: $390 million over project life Total Direct Expenditures: $5.2 billion over project life · Direct Expenditures, Alaska: $1.7 billion · Indirect Expenditures, Alaska: $1.1 billion over project life <u>Operations and Maintenance</u> Total Direct Jobs: 1,000 · Direct Jobs, Alaska: 600 · Direct Jobs, Y-K region: 500 to 600 · Indirect Jobs, Alaska: 650 Total Direct Payroll: $2.7 billion over project life · Direct Payroll, Alaska: $1.7 billion · Indirect Payroll, Alaska: $40 million over project life Total Direct Expenditures: $14 billion over project life · Direct Expenditures, Alaska: $9.8 billion · Indirect Expenditures, Alaska: $150 million over project life <u>Closure, Reclamation, and Monitoring</u> Total Direct Jobs: 20 to 100 for deconstruction, 6 for about 50 years after mine closure, 6 in perpetuity	<u>Construction</u> · Direct and Indirect Jobs: Same as Alt 2 · Direct and Indirect Expenditures: Same as Alt 2, except decrease for transportation by tens of millions of dollars <u>Operations and Maintenance</u> · Direct and Indirect Jobs: Same as Alt 2, except decrease for transportation. · Direct and Indirect Expenditures: Same as Alt 2, except decrease for transportation by tens of millions of dollars. <u>Closure, Reclamation, and Monitoring</u> Same as Alt 2	<u>Construction</u> · Direct and Indirect Jobs: Same as Alt 2, except increase for pipeline. · Direct and Indirect Expenditures: Same as Alt 2, except - Decrease for mine site and transportation by tens of millions of dollars - Increase for pipeline by hundreds of millions of dollars <u>Operations and Maintenance</u> · Direct and Indirect Jobs: Same as Alt 2, except - Decrease for transportation - Increase for pipeline · Direct and Indirect Expenditures: Same as Alt 2, except - Increase for mine site by hundreds of millions of dollars - Decrease for transportation by tens of millions of dollars - Increase for pipeline by tens of millions of dollars <u>Closure, Reclamation, and Monitoring</u> · Direct and Indirect Jobs: Same as Alt 2, except increase for pipeline · Direct and Indirect Expenditures: Same as Alt 2	<u>Construction</u> · Direct and Indirect Jobs: Same as Alt 2, except increase for transportation · Direct and Indirect Expenditures: Same as Alt 2, except increase for transportation by tens of millions of dollars <u>Operations and Maintenance</u> · Direct and Indirect Jobs: Same as Alt 2, except increase for transportation by truck and decrease for transportation by barge · Direct and Indirect Expenditures: Same as Alt 2, except increase for transportation by less than ten million dollars <u>Closure and Reclamation</u> · Direct and Indirect Jobs: Same as Alt 2, except increase for transportation · Direct and Indirect Expenditures: Same as Alt 2, except increase for transportation	Same as Alt 2	<u>Construction</u> · Direct and Indirect Jobs: Same as Alt 2, except increase for pipeline · Direct and Indirect Expenditures: Same as Alt 2, except increase for pipeline by tens of millions of dollars <u>Operations and Maintenance</u> Same as Alt 2 <u>Closure, Reclamation, and Monitoring</u> Same as Alt 2

Table 3.18-9: Comparison of Impacts by Alternative

Impact-causing Project Component	Alt. 1 – No Action	Alt. 2 – Proposed Action	Alt. 3A – LNG-Powered Haul Trucks	Alt. 3B – Diesel Pipeline	Alt. 4 – BTC Port	Alt. 5A – Dry Stack Tailings	Alt. 6A – Dalzell Gorge Route
Lease Fees, ROW Acquisition, Tax Revenue, Royalties	No effect	<u>Construction</u> Total ROW Acquisition: $4.4 million · ROW Acquisition to federal: $2.75 million · ROW Acquisition to state: $1.5 million · ROW Acquisition to ANCSA corps: $250,000 <u>Operations and Maintenance</u> Total Oil and Gas Property Tax from pipeline: $2 million per year over project life (including pipeline construction) · Oil and Gas Property Tax from pipeline to state: $1.63 million per year · Oil and Gas Property Tax from pipeline to Matanuska-Susitna Borough (MSB): $356,000 per year Oil and Gas Property Tax to Kenai Peninsula Borough (KPB): Not estimated Other Property Tax to MSB and Unalaska: Not estimated Royalties to Calista (and shared with other ANCSA regional corporations): $55.4 million per year over project life Royalties to The Kuskokwim Corporation: Not estimated Lease payments to Calista and Cook Inlet Region Inc.: $250,000 per year over project life Corporate Income Tax and Mining License Tax to state: $1.24 billion over project life Misc. Taxes and Fees: Not estimated <u>Closure, Reclamation, and Monitoring</u> Not estimated; magnitude of impact would be low	<u>Construction and Operations and Maintenance</u> Same as Alt 2, except no property taxes paid to Unalaska. <u>Closure, Reclamation, and Monitoring</u> Same as Alt 2	<u>Construction and Operations and Maintenance</u> Same as Alt 2, except property tax increase for KPB. <u>Closure, Reclamation</u> Same as Alt 2	Same as Alt. 2	Same as Alt 2	Same as Alt 2

Table 3.18-9: Comparison of Impacts by Alternative

Impact-causing Project Component	Alt. 1 – No Action	Alt. 2 – Proposed Action	Alt. 3A – LNG-Powered Haul Trucks	Alt. 3B – Diesel Pipeline	Alt. 4 – BTC Port	Alt. 5A – Dry Stack Tailings	Alt. 6A – Dalzell Gorge Route
Local Public Infrastructure and Services	No effect	The effects in communities in the EIS Analysis Area would be low since the temporary and permanent camps housing project workers would be self-contained, and operated and maintained by Donlin Gold throughout project construction, operations and maintenance, and closure, reclamation, and monitoring.	Same as Alt. 2	Same as Alt. 2	Same as Alt. 2	Same as Alt. 2	Same as Alt. 2
Impacts Summary	The direct and indirect socioeconomic effects would be of low to medium intensity due to observable reductions in employment opportunities as a result of termination of Donlin Gold activities. Effects would be permanent in duration, and regional in extent (within the Y-K region). These effects would be important in context (affecting primarily minority and low-income communities). Impacts to areas outside of the Y-K region would be negligible.	Socioeconomic impacts would be medium to high intensity due to increased levels of employment and expenditures in excess of historic limits and trends. Employment effects would be particularly high within the Y-K region. The magnitude of the effects of project payments to state and local governments and ANCSA corporations would be medium to high and beneficial, while the effects on public infrastructure would be low. Impacts during the construction phase would be considered temporary in duration. Impacts would be long-term during the operations and maintenance phase because they would extend for the life of the project. Impacts during the closure, reclamation, and monitoring phase would be long-term or permanent. The geographic extent of socioeconomic impacts would vary but primarily occur regionally (affecting communities throughout the EIS Analysis Area). Context for direct impacts would be important given Donlin Gold's commitment to hire qualified Y-K region residents, thus affecting primarily minority and low-income populations.	The direct and indirect socioeconomic impacts of the construction, operation, and closure phases would be similar to those under Alternative 2 with some exceptions. The decrease in jobs and fuel cost savings that would result from using LNG instead of diesel would be small relative to total project employment and expenditures. Fiscal effects would be similar to those under Alternative 2, except revenues to the City of Unalaska from its property tax would not increase because an increase in tank storage capacity at the Port of Dutch Harbor would probably not be required.	The direct and indirect socioeconomic impacts of the construction, operation, and closure phases would be similar to those under Alternative 2 with some exceptions. The larger workforce and increased expenditures required to construct a diesel pipeline and power mining operations with diesel would more than offset any decreases in employment and expenditures due to reduced diesel shipping, barging, trucking, and storage requirements. Consequently, Alternative 3B would enhance the beneficial direct and indirect employment, income, and sales impacts of the project. Fiscal effects would be similar to those under Alternative 2 except the construction of a new or expanded dock facility and fuel storage in Cook Inlet would enhance the beneficial effects on the KPB.	The direct and indirect socioeconomic impacts of the construction, operation, and closure phases would be similar to those under Alternative 2 with some exceptions. The larger workforce required to construct a longer road and truck freight and diesel would more than offset any decreases in employment due to reduced barge crews. Construction of a longer road would increase expenditures. Consequently, Alternative 4 would enhance the beneficial direct and indirect employment, income, and sales impacts during project construction.	The overall direct and indirect socioeconomic impacts would be similar to those under Alternative 2.	The direct and indirect socioeconomic impacts of the construction, operation, and closure phases would be similar to those under Alternative 2 with some exceptions. As a result of the larger workforce and higher expenditures required to construct a pipeline with additional horizontal directional drilling, Alternative 6A would enhance the beneficial direct and indirect employment, income, and sales impacts during project construction.
Summary Impact Conclusion	*Alaska:* Negligible *Y-K region:* Low to Moderate	*Alaska:* Moderate (beneficial) *Y-K region:* Major (beneficial)	Same as Alt. 2	Same as Alt. 2	Same as Alt. 2	Same as Alt. 2	Same as Alt. 2

This page intentionally left blank.